# PURCHASING

JANUARY, 1947

E. G. SWANSON:
THERE WILL COME A DAY ...

See Page 87

Pages 91.9

Table of Contents

CONOVER PUBLICATION . 35 CENTS



# INCREASE PRODUCTION LOWE

TODAY, experienced management knows how vital Effective Lubrication is in stepping up production, improving quality and lowering costs. That's why more and more plants-of every size and type-making all kinds of goods-are using Texaco Lubricants and Specialized Lubrication Engineering Service. Texaco offers-

- 1. A complete line of service-tested lubricants to keep metal-working machines, hydraulic mechanisms, motors-all plant equipment-operating at peak efficiency;
- 2. Specialized Lubrication Engineering

Service, ranging from assistance on special problems to complete plant surveys, to assure using the right lubricant right;

3. Dependable local delivery service through Texaco's nationwide distribution facilities.

Increase production and lower costs in your plant! Just call the nearest of the more than 2300 Texaco distributing plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.



**TEXACO** Lubricants, Fuels and **Lubrication Engineering Service** 

Tune in...TEXACO STAR THEATRE presents the NEW EDDIE BRACKEN SHOW every Sunday night. Metropolitan Opera broadcasts every Saturday afternoon.



# Moisture Protected PUMP MOTORS Assure Dependable Power for Water Supply

 On Farms
 For City Water Supply • In Industrial Plants • For Fire Protection

entury's triple insulation is especially effective in resisting high humidity and dampness thus the windings are protected against premature deterioration.

Hundreds of thousands of Century motors are providing a long life of satisfactory service on pump installations of many kinds and sizes, from small fractional horsepower farm water systems to large city and industrial pumping plants.

They start quietly, run quietly and with an unusual freedom from vibration.

> Century motors are built in a wide range of types, in sizes from 1/6 to 400 horsepower for any type of pumping service - in any climate - and all other electric power applications. Specify Century motors for all your electric power requirements.







CENTURY ELECTRIC COMPANY 1806 Pine St., St. Louis 3, Mo.

Offices and Stock Points in Principal Cities



COMPLETELY conditioned for its job of handling air in pneumatic tool service—that's Republic's Tower Pneumatic Hose. Every feature of design and construction contributes to Tower's ability to harness high, pulsating pressures through record-length service. Maximum efficiency for users is assured by superior operational strength with unusually light weight for ease of handling. Tower's job-earned reputation for performance also includes a demonstrated imperviousness to oil in the line, cutting, abrasion, crushing. For the toughest jobs, ask your Republic Distributor for Tower.

MORE SERVICE FROM RUBBER FOR INDUSTRY

# REPUBLIC RUBBER

DIVISION

LEE RUBBER & TIRE CORPORATION

YOUNGSTOWN 1, OHIO

REPUBLIC INDUSTRIAL PRODUCTS



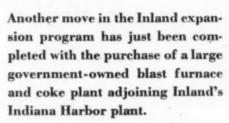
CONSHONOCKEN PA

- 1. Seamless, oil and heat-resistant, extruded rubber tube.
- 2. High tensile, twisted cords braided into seamless, tubular plies.
- 3. Rubber insulating layers assuring firm ply adhesion.
- Special abrasion, cut, weather and sunresisting rubber cover, extruded without seam.

# Inland Buys War Plant

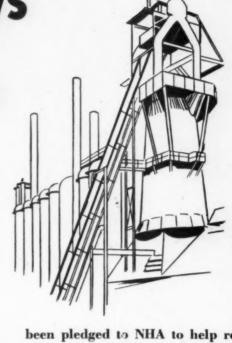
-Will Aid

Housing Program



This plant, including two blast furnaces, two batteries of coke ovens, a by-product plant and other auxiliary buildings and equipment, was built and operated by Inland for the government during the war. The reopening by Inland marks its first operation for pig iron production since shortly after VJ day.

At present, this production has



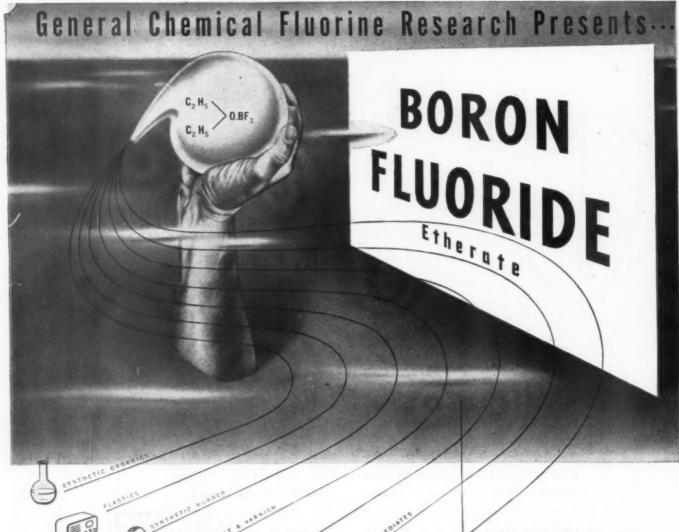
been pledged to NHA to help relieve one of the nation's biggest domestic problems . . . veterans' housing. However, when the veterans are served, it will be available to pig iron consumers generally.

This acquisition will not mean more steel today because there will be no immediate increase in steel finishing capacity. It will, however, serve as a base for increased steel production in the future. In the meantime you can be assured that Inland is producing as much steel as possible, and the same helpful metallurgical and engineering service is always available.

# INLAND STEEL CO.

38 South Dearborn Street, Chicago 3, Illinois

Sales Offices: Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Paul, St. Louis



#### CHART NEW COURSES FOR AMERICAN INDUSTRY

Boron Fluoride Etherate . . . valuable catalytic chemical of wide ranging potentialities for American Industry!

THE CATALYST TO

This new liquid fluorine compound has a multitude of uses. Technical literaturefilling volumes-contains extensive data on the reactions catalyzed by BF2 as well as by its complexes with other organic molecules. Repeated reference is made to its superiority to other catalysts since reactions are moderated and fewer undesirable by-products result.

Outlined at right are some of the prin-

cipal applications for BF3 as a catalyst. Perhaps they indicate ways in which you can utilize a chemical of these characteristics in your development or production program.

Boron Fluoride Etherate is commercially available in drums. For full information, contact General Chemical Company, Fluorine Division, 40 Rector Street, New York 6, N. Y. When writing, if you outline your proposed application for this new catalyst, the technical experts of our Fluorine Division can work with you toward an early solution of your problem.

#### GENERAL CHEMICAL COMPANY

40 RECTOR STREET, NEW YORK 6, N.Y.

40 RECTOR STREET, NEW YORK 6, N. Y.

Sales and Technical Service Offices: Atlanta - Baltimore - Birmingham (Ala.)
Boston - Bridgeport (Conn.) - Buffalo - Charlotte (N. C.) - Chicago
Cleveland - Denver - Detroit - Houston - Kansas City - Los Angeles
Minneapolis - New York - Philadelphia - Pittsburgh - Providence (R. 1)
San Francisco - Seattle - St. Louis - Utlea (N. Y.) - Wenstchee
Yakima (Wash.)

In Wisconsin: General Chemical Wisconsin Corporation, Milwaukee, Wis.
In Canada: The Nichols Chemical Company, Limited
Montreal - Yeronto - Vancouver



#### Physical Properties

%BF.



Mol. Wt. Melting Pt. Less than —60°C 125°C Boiling Pt. 1.14 at 25°C Spec. Gr.

#### Some of the Principal Reactions Catalyzed by BF3

47.8% min

- 1. Polymerization of unsaturated compounds such as olefins, diolefins, vinyl ethers, fatty oils, and terpenes. The products may be solid polymers useful as plastics or liquids as in the bodying of drying oils for paints and varnishes.
- Condensation of aromatic nuclei with olefins and diolefins, paraffins, and olefins, and aromatic nuclei or olefins with acids.
- 3. As a cyclizing agent for rubber.
- 4. As an esterification catalyst.
- 5. As a catalyst in the synthesis of aliphatic acids from alcohols and carbon monoxide.
- 6. As a promoter and dehydrating agent in the sulfonation and nitretion of aromatic compounds.



Photo courtesy of Addressograph-Multigraph Corporation

THE zinc sheets which ultimately become Multilith plates require a delicate scrubbing (and quick drying!) as they pass through the manufacturing stage at Address ograph-Multigraph Corporation.

Formerly this was a slow, costly, hand-sponging job. Today it is fast, accurate and cheap—thanks to a unique washing machine developed by Addressograph-Multigraph.

This machine embodies an automatic gravity water wash, speeds the sheets past a 36" Osborn Rotary Spiral Brush, dries them in a gas drying cabinet—all in a fraction of a minute!

Unusual process?—of course! But there are thousands of unusual processes in almost every industry (as well as millions of usual ones!) where Osborn brushes can help speed up manufacture, cut costs—

and produce a better, more uniform and more saleable product.

Why not let an Osborn engineer bring you up to date on the latest Osborn brushing techniques, and show how they can be applied to your business? Just ask us to have him call, without obligation to you, of course.

### THE OSBORN MANUFACTURING COMPANY

5401 Hamilton Avenue

Cleveland, Ohio



WORLD'S LARGEST MANUFACTURER OF BRUSHES FOR INDUSTRY

What's a

What's a

Veccor-Reading

4 4 7 1 9

4 4 7 8 9

... and how does it tell your future

7 5 7 0 7 5

6 6 8 0 5

6 8 8 0 5

"Veeder-Rending" is a standard term originated by one of the leading electrical manufacturers to designate the figures noted down, at stated intervals, from the face of a Veeder-Root Counting Device installed on a production machine or process.

And Every "Veeder-Reading" is a Direct Reading that tells the story without need of translation . . . tells in bold figures the exact number of turns, strokes, pieces, trips, motions or other performance-units completed by a machine during a minute, hour, shift or other production-period. So errors can be prevented, schedules tightened, production sped up, costs kept down. That's known throughout all industry as Veeder-

Root Countrol. Find out how it can be built into your product, to brighten its sales future. Write.

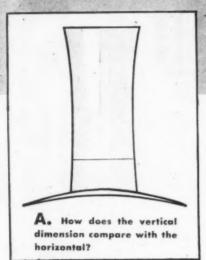
The Counting House of Industry

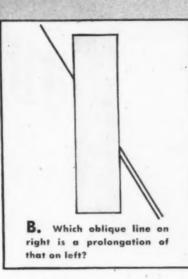
VEEDER-ROOT INC.

Hartford 2, Connecticut

In Canada: Veeder-Root of Canada, Ltd., Montreal In England: Veeder-Root Ltd., Dickinson Works, 20 Purley Way, Croydon, Surrey

# How is Your "Eye Cue" on Measurements?





C. What size is this Socket Screw?

A surprising number of seasoned shop men discovered that eye cues to sizes are not always reliable. In several tests made recently, many failed to identify the correct size and thread pitch of the socket screw above. Ordinarily these men don't guess...they take the sure but slow way of gauging or "miking".

Now...they're sure at a glance . . .

WHEN IT'S SIZE-MARKED

This unique improvement appears on the head of every P-K Socket Head Cap Screw. It saves time by eliminating gauging or "miking" and removes every possibility of error.

At the tool crib, left-over mixed-up screws are quickly identified and replaced in the right bins. Correct sizes are issued to assembly line workers – speeding up their work. New help learns screw sizes faster – works faster.

AN EXTRA SALES FEATURE, TOO. Service men in the field recognize its time-saving advantages on re-assembly jobs.

#### Plus ANOTHER IMPROVEMENT - GEAR GRIP\*

This firm gripping surface prevents slips and slow-downs for fast fingers, even when oily. Only P-K offers Socket Head Cap Screws with both features. Write for samples, today. Parker-Kalon Corp., 200 Varick Street, New York 14, N. Y.

ANSWERS: A. The same B. The lower one
C. When It's P-K Size-Marked, there's never a question!

Ground Thread Socket Set Screws

Threads are ground on the set Screws

Threads are ground on pre-hardened stock by a newly developed centerless grinding smoother, brighter, cleaner finish, free from imperfections common to ordinary cut thread set screws;

faultless thread contour and dependable Class 3 Fit. They look better . . . start better. Write for samples.

P-K SOCKET, SCREWS ARE AVAILABLE FOR PROMPT DELIVERIES



\*U. S. PAT. No. 126,409

PARKER-KALON Cold forged SOCKET SCREWS



 Extensive research and experimentation, accelerated by wartime necessity, introduced entirely new techniques in testing and evaluating rubber compounds for specific product development objectives.

More accurate determination of the resilience characteristics of all types of commercially obtainable rubbers under both static and dynamic conditions is one of the numerous achievements of rubber technicians. Continuing developments in the curing of rubber with dielectric heat, injection molding of rubber, new methods of testing the comparative chemical and physical properties of all types of rubber open the doors to new and better products. Improvement of visual design ("eye appeal"), increased functional efficiencies, and more accurate production controls at lower unit costs are among the activities of ORCO technicians.

If you are alert to the fact that even QNE small improvement in a product may strengthen your competitive position appreciably, ORCO technicians offer their cooperation.

## THE DHIO RUBBER COMPANY

Factories: Willoughby, Ohio - Long Beach, California - Cordeautville, Pennsylvania Branches: Detroit - New York - Chicage - Indianapolis - Boston - Cleveland

# Welding Dolly with Fafnirs Boosts Production 50%



Engineers of McJunkin Supply Company, Charleston, West Virginia had the task of designing equipment for continuous, economical welding of steel shells up to 16 feet in diameter. Their solution – a 40 foot welding dolly with a drive shaft on one side and a set of adjustable pulleys on the other to revolve the cylinders.

They knew that such equipment couldn't be picked up ready made – and that's where the West Virginia Bearing Company, a Fafnir distributor came in. At the request of McJunkin engineers, a recommendation was made calling for the use of 40 Fafnir 1<sup>15</sup>/<sub>16</sub>" LAK Ball Bearing Pillow Blocks supporting 20 teninch pulleys. These Pillow Blocks offer all the advantages of the famous Fafnir Wide Inner Ring Mechani-Seal Ball Bearing—simplest installation and removal, positive lubricant retention and minimum maintenance. The result of this cooperation between a Fafnir distribu-

tor and his customer is a dolly that in actual service accounted for a 50% production increase.

This kind of cooperation offered by Fafnir distributors backed by Fafnir's engineering staff is proof of the wisdom of Fafnir's policy of not only making good ball bearings but helping users to make the most of them. The Fafnir Bearing Company, New Britain, Connecticut,

FAFNIR BALL BEARINGS



MOST COMPLETE LINE IN AMERICA

# "TWISTING" A WAY



# INTO TIGHT PLACES

Mechanisms used to actuate war resources of springmaking science in spaces. In the case of large springs, the yet maintaining the same load resisting ful choice of material as well as shape

equipment had often taxed the full crowding spring action into small need for reducing total weight characteristics involved careof spring. While from a spring-life

standpoint such crowding should be minimized, Gibson engineering skill has time after time built rugged, precision springs to meet just these severe conditions. No matter where or how your spring must work, it pays to have at your service, the all-round experience of Gibson spring engineers.



#### The WILLIAM D. GIBSON CO.

1800 Clybourn Avenue, Chicago 14, Illinois

# GIBSON-SPRINGS



# Two ways to play safe when you buy Fluorescent Lamps



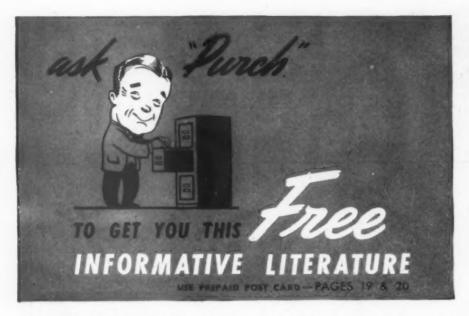


one way would be to own an assembly of seasoning racks like the one above, where you could give fluorescent lamps a thorough going-over. Every General Electric fluorescent lamp must pass a searching examination on racks like these. And that is only one of 480 tests and inspections that maintain the uniformly high quality of General Electric fluorescent lamps. Obviously, even this one test is hardly practical for an individual lamp user. But as millions of users know, playing safe when you buy fluorescent lamps can be a very simple matter. All you have to do is . . .

INSIST ON THE MONOGRAM

on every fluorescent lamp you buy. The name General Electric means not only quality today, but unending effort to give you more value for your money.\* General Electric lamp research is constantly at work to make General Electric Lamps ever better and to make them Stay Brighter Longer.

G-E LAMPS
GENERAL BELECTRIC



☐ 1. METAL-COVERED WOOD MOULD-INGS — Bulletin illustrates metal-covered wood mouldings made by Loxit Moulding Co. Catalog numbers, size specifications and examples of applications are given. Lengths 8 to 12 feet; chrome finished on zinc base; 200 designs covered in stock.

☐ 2. COLLETS — Collets and feed fingers for automatic and hand screw machines, lathes and milling machines are illustrated and described in 28-page catalog No. 16 offered by Sutton Tool Co. Specifications and other data are included. Sutton collets are said to feature exclusive diamond grip action to give tighter grip with less chucking strain and less wear on collets.

☐ 3. FILTER PRESSES—Shriver & Co., illustrated catalog No. 46 presents the story of the filter press in relation to its method of selection, purpose of the filtration operation, types of filters, materials of construction, determination of filter press requirements, and approximate costs.

☐ 4. CLAMSHELL BUCKETS — Blaw-Knox catalog No. 2076 presents pictures and factual data on its two-line buckets for materials handling, digging, dredging, etc. It enables user to coordinate crane capacities with the data presented in selection of the bucket for his needs. Information includes details of construction, definition of bucket capacities, types, applications. and consolidated data list with specifications and service classifications.

☐ 5. POTENTIOMETERS—"ElectroniK Strip Chart Potentiometer" is title of Brown Instrument Co. catalog 15-10, which describes and illustrates new development in temperature recording and control instruments employing "Continuous Balance" principle. Catalog illustrates and describes various types of potentiometers, switch forms, controller, precision indicator, and thermocouple assemblies, control forms chart and list of strip chart and scale ranges.

☐ 6. FLEXIBLE FLASHLIGHT—Catalog insert issued by Aero-Motive Mfg. Co., de-

scribes flashlight featuring bulb assembly mounted at the end of a flexible extension, which facilitates lighting of otherwise inaccessible areas. Three types available.

☐ 7. METAL TURNING PARTS—Machine tool units for the metal turning industry are described in "Easy-to-use" buyer's guide issued by Modern Collet & Machine Co. Catalog covers collets for screw machines, lathes, milling machines; pushers, alloy steel screw machine cams; gears, and screw machine replacement parts. Details are also given on the company's screw machine rebuilding service.

☐ 8. CHAIN HOISTS—Sixteen-page catalog G-558 covers complete line of Chester spur-geared (high-speed) and differential chain hoists, and arm type low headroom Timken equipped trolley hoists. Catalog includes tables, section and photographic views of the various products, including line of I-beam trolleys.

9. PORTABLE WELDER—Practical instructions in welding, brazing & soldering, are condensed in pocket-size 24 page Magic Wand Welding Manual, which describes the "Welde: in the Carrying Case" made by Patent Specialties, Inc. Welding techinques are defined step by step, covering the handling of the common metals as well as light and very heavy gage work. Special jobs such as light cutting, burning, heating, etc., for which a portable welder is useful are also described.

10. PRESSURE CASTINGS—Meehanite Metal Corp. bulletin No. 10, 12 pages, describes and illustrates applications of Meehanite castings where high pressures are required. Photographs show intricate shapes in which Meehanite may be cast, and graphs show modulus of elasticity and strength values at normal and elevated temperatures.

☐ 11. STAINLESS STEEL—Handbook of 100 pages issued by Alleghany Ludlum Steel Corp. lists more important types of

stainless and heat resisting steels, their analysis, physical data, mechanical properties, etc. Other sections deal with corrosion resistance to various media; A-L stainless steel products; information on pluramelt; and the fabrication of stainless steels. Tables and reference material deal with weights, bars, wire, sheets, plates, circles and tubes.

☐ 12. LUBRICANTS—Educational bulletin entitled "Lubricania" issued by Tide Water Associated Oil Co. defines the tests and terms which describe the physical characteristics of oils, namely: Common Residue, Pour Point, Viscosity, Flash and Fire, Neutralization Number, Penetration, Specific Gravity, Color, Extreme Pressure, Steam Emulsion, Corrosion, and Uniformity. It is easy to read and worth reading.

☐ 13. DIE STEEL—Speed Cut, a new free machining die steel for die-casting dies, for white metal alloys, and plastic molds, is described in bulletin issued by Vanadium-Alloys Steel Co. Free machining quality is said to permit hardening prior to machining. Steel is furnished in annealed state or heat treated within range of 250 to 350 Brinell as specified. Machines readily at 300 Brinell. It can be hobbed without difficulty in annealed state.

☐ 14. BRANCH PIPE OUTLETS—Twenty-page 1946 "Weldolet" catalog of Bonney Forge & Tool Works contains complete application information, structural data, installation procedure, temperature-pressure rating charts and specifications of fittings for making pipe-strength outlets. Fittings are made with three types of outlets.

☐ 15. CANVAS TRUCK COVERS—Canvas for trucks and trailers are described in circular issued by Webb Mfg. Co. Diagrams show seven standard styles available to meet specific truck or trailer requirements, square front, round front, etc.

☐ 16. MASONRY DRILLS—Carbide-Tipped Masonry Drills are described in circular by Whitman & Barnes. It is claimed drills will easily and quietly penetrate concrete, cement, brick, slate, marble, stone and all types of masonry materials. Drills can be used in electric or other types of portable drills as well as hand braces.

☐ 17. WATERPROOF WORK CLOTHING
—Features of Rainfair-vulcanized work
clothing are illustrated and accompanied
by swatch samples in new catalog issued
by Rainfair Inc. Line includes all-purpose
general utility and industrial raincoats,
waterproof jackets, overalls and pants, police coats, fire coats and special occupational garments, industrial, laboratory and
canners aprons, hats, cap covers, leggings
and sleeves, etc.

☐ 18. ALUMINUM-BRONZE WELDING — Revised edition of "Ampco-Trode Welding Technique", bulletin W-2A, issued by Ampco Metal, Inc., features the welding of aluminum bronze electrodes by the carbon metallic arc methods. It contains weldability chart for copperbase alloys, listing 33 bronze alloys, their chemical composition, physical properties and detailed weldability data; 22 photographs, sketches, diagrams and tables of recommended currents and voltages.

(Continued on page 16)

ASK "PURCH" FOR THIS FREE, UP-TO-DATE LITERATURE Four Pages — 14-16-19-20

Use convenient prepaid postcards on pages 19 & 20

# ROUGH FILING calls for TOUGH FILES



SNAGGING a rough casting with an ordinary file is a sure invitation to headaches-and "toothaches"! Hard projections and sharp edges put a severe strain on regular file teeth-often cause them to shell or break out under pressure. Roughing-down calls for a file with an exceptionally strong tooth construction.

The right file for the job is the Nicholson or Black Diamond Special Purpose Foundry File, with extra-sturdy teeth designed to absorb shock and resist breaking. Specializing in rough use-like knocking fins and sprues off foundry castings or filing the narrow edges and sharp corners of dies-this "bruiser" of the file family continues to give efficient service long after regular files have been discarded.

Made in Flat and Half Round shapes, sizes 8" to 14". Stamped "Foundry."

. OTHER NICHOLSON AND BLACK DIAMOND SPECIAL PURPOSE FILES include files for: Aluminum, Stainless Steel, Brass, Lead, Die Castings, Die Making, Lathe Filing, plus milled Curved Tooth files and a wide range of Swiss Pattern precision files. Order through your industrial distributor.



NICHOLSON FILE CO. . 28 ACORN STREET, PROVIDENCE 1, R. I.

(In Canada, Port Hope, Ont.)



NICHOLSON FILES FOR EVERY PURPOSE



(Continued from page 14)

- ☐ 19. GOGGLE VALVES Bulletin describes Bailey Mechanical Goggle Valves which are made in sizes from 72" down to 6"—including totally enclosed designsfor use in gas washers, boiler plants, chemical and metallurgical plants, etc. Wm. M. Bailey Co.
- ☐ 20. MASKING LACQUERS Pen-Kote protective coatings for masking parts prior to platting and for insulation of platting racks, are described in 4-page bulletin. Peninsular Chemical Products Co.
- ☐ 21. ELECTRONIC TUBES Electronic tubes for industry and communications are listed in Bulletin ETX 10 available from the General Electric Company. It lists prices, ratings and warranties.
- ☐ 22. POWER SHEARS Steelweld Pivoted Blade Shears characterized as "really new" and designed for heavy duty production work, are described in bulletin issued by the Cleveland Crane and Engineering Co. Design is said to make for greater accuracy, simple adjustment and longer knife life, and other advantages. Shear line developed for cutting plate of all thicknesses from 12 gauge to 1¼" plate, 6' to 16'.
- ☐ 23. FACTS ON DIESELS—"Applications and Economics of the Diesel Engine" is title of informative pamphlet issued by Diesel Engine Migrs. Assoc. Practical applications are discussed and limitations explained.
- ☐ 24. BRAKES—Line of Type SW brakes for cranes, hoists and mill machines are presented in Victor R. Browning & Co., Inc., bulletin. Exclusive toggle arrangement is claimed to keep braking torque uniform. Diagrams and illustrations explain operation.
- ☐ 25. MAKING TAPES—Mystik Adhesive Products will be glad to send you samples of Mystik Mask, Mystik Spra-Mask, and Mystik Samd Blast, and also copy of booklet showing how various kinds of industrial tapes can be used to cut costs.
- ☐ 26. SPECIAL FASTENERS—Catalog describes special rivets, nails or threaded parts cold-headed by John Hassall, Inc. Company says these cold forged products offer economy and added strength. Wide selection of metal and sizes.
- 27. WORK GLOVES New Catalog covers the full line of Advance work gloves leather palm gloves, fiannel gloves, wire stitched gloves, welder

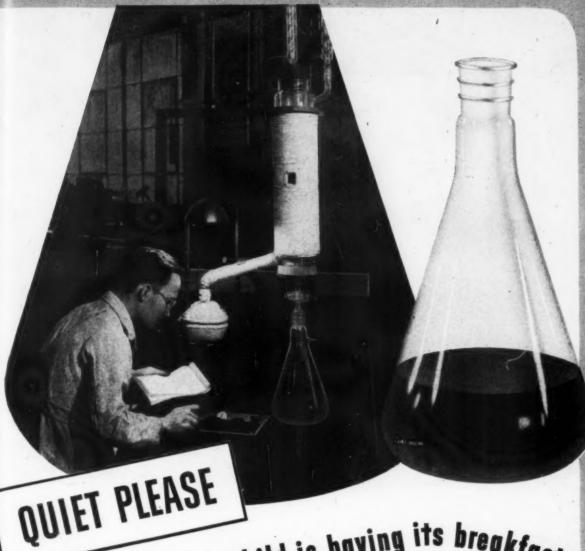
gloves, etc., and full line of safety and protective clothing. Advance Glove Mfg. Co.

- ☐ 28. PUMPS Catalog No. C945 covers horizontal split case, multi-stage, high pressure pumps by the Economy Pumps, Inc. Pumps can be used with motor, steam tubine or engine drives. Can be used for high pressure boiler feeding, high pressure water supply, hydraulic elevator service—in general where quantities of liquids are to be handled from 75 to 500 # psi and capacities from 75 to 400 gpm.
- ☐ 29. RECORD CONTROLS—Tested methods and equipment for better record management and protection are incorporated in new Diebold, Inc. brochure. Four types of record system procedure, microfilming, steel storage files, the "Cardineer" trays, are included.
- ☐ 30. METAL CASTINGS Strenes Metal Castings, largely dies, employed for almost everything that involves drawing and forming operations, are illustrated in 8-page bulletin available from Advance Foundry Company. Parts castings such as pump shells, impellers, melting pots and bushings are also illustrated.
- ☐ 31. HEAT TREATING—Gas fired, Oil fired, Immersed electrode, Calrod electric Pot Furnaces for heat treating at any temperature from 300°F. to 2350°F. are described and illustrated in booklet by A. F. Holden Company. Photographs of 'actual installations are accompanied by blueprint schematic layouts of pot furnaces for bright tempering, annealing, spheroidizing, martempering, brazing, hardening, nitriding stainless steels, etc.
- ☐ 32. ALUMINUM FOUNDING "Aluminum Casting Alloys" is title of 42-page booklet by Federated Metals Division, American Smelting & Refining Company. Booklet deals with: (1) Metallurgy of aluminum, effects on copper, silicon, magnesium, etc.; (2) Specifications including explanation concerning data given under mechanical and industrial properties; (3) Foundry Practice in melting & casting. Photographs, charts, tables and diagrams accompany the text.
- ☐ 33. STAINLESS Steel Bellows Stainless Steel Bellows is title of bulletin just released by Chicago Metal Hose Corp. It gives up-to-date information concerning the use of stainless steel bellows as equalizers, compensators, expansion joints, flexible connectors, vapor and steam traps.

- ☐ 34. STEEL PLATE—"Speed Case", a free machining low carbon open hearth steel plate of high impact resistance at low temperatures, and "Speed Treat", a free machining medium carbon high tensile steel plate, are subjects of a 20-page illustrated booklet issued by W. J. Holliday & Co. Speed Treat is said to make for 30% faster machining than corresponding medium carbon steels. Booklet discusses physical characteristics, physical properties, and industrial uses of both types.
- □ 35. OIL-HYDRAULIC PRESSES—"Presses", a 21-page booklet prepared by Denison Engineering Company describes the advantages and uses of Oil-Hydraulic presses, known as "HydrOILics". Types include Assembling, Straightening, Knee-Type, Open-Side Presses, and bench size unit known as the Multipress. It includes photographs, dimension and specification charts and engineering facts and figures. Presses are said to offer flexibility, position control, low maintainance and economy.
- General advantages of immersion melting, which puts the heat "inside the metal, not inside the pot" are discussed in 8-page bulletin by C. M. Kemp Mfg. Co. Four typical installations are portrayed and illustrated with photographs and blueprint diagrams. Advantages include fuel economy, temperature control, reduction in dross and longer container life.
- ☐ 37. FLAME HARDENING—Brochure by Steams-Roger Míg. Co. describes the Denver Universal Flame Hardener. Parts are completely machined, regardless of tolerance, prior to hardening without danger of scaling or distortion. Illustrations show application of the machine to unusual and difficult flame hardening problems.
- of metal by shot peening is described in 15-page bulletin issued by Pangborn Corporation. The merits; uses, and application of shot peening (bombardment of a metal surface by small round metal BB-shot-like particles) in lengthening the service life of metals are described. Measurement of peening intensity, and equipment employed, are explained and illustrated by photographs and diagrams.
- ☐ 39. ELECTRODES, WELDING EQUIP-MENT—Champion line of welding products, electrodes, welding rods, carbon products, fluxes, welding machines and brazers, are welder accessories, safety equipment, etc., are covered in 96-page catalog issued by Champion Rivet Company. Twenty pages of handy reference information are included.
- ☐ 40. MAGNETIC PULLEYS—information on selecting for proper size, material, capacities, trajectory charts, use of double magnetic pulleys as well as application suggestions and pictures are contained in Catalog 303 on magnetic pulleys just released by Stearns Magnetic Manufacturing Co..
- ☐ 41. SYNTHETIC RUBBER—"Five Years of Synthetic Rubber" is title of 50-page mimeograph booklet just released by the United States Rubber Co. Various types of synthetic rubber are identified and an impartial analysis of their properties is shown in tabular form. Booklet gives an authoritative appraisal of the importance (Continued on page 19)

ASE "PURCH" FOR THIS FREE, UP-TO-DATE LITERATURE
Four Pages — 14 - 16 - 19 - 20
Use convenient prepaid postcards on pages 19 & 20

# \* RICHARDSON MEANS Versatility IN PLASTICS



··· a brain-child is having its breakfast He's feeding fluid to a new idea . . .

research . . . the way Richardson does it. And how does Richardson do it? We don't take "no" for an answer. We won't accept "yes" either. Not until Richardson Plasticians have stripped every theory to the bone, made each new product stand up and prove itself. That's the way Richardson developed EBROK bituminous battery containers; over 700 special grades of Laminated INSUROK; special molding techniques; and our own tooling facilities. All these enable us to meet widespread industrial requirements. This is versatility. And it's one of the reasons why our customer list is growing greater every year!

# INSUROK Precision Plastics

fattening a project that has possibilities. It's



DESIGNING

... Artistic visualization. Creative engineering. Practical planning for efficient plastics production.



... Complete machine shop facilities for manufacturing our own dies, molds, tools



Sheets, rods, tubes. ndard NEMA grades; r 700 special grades.

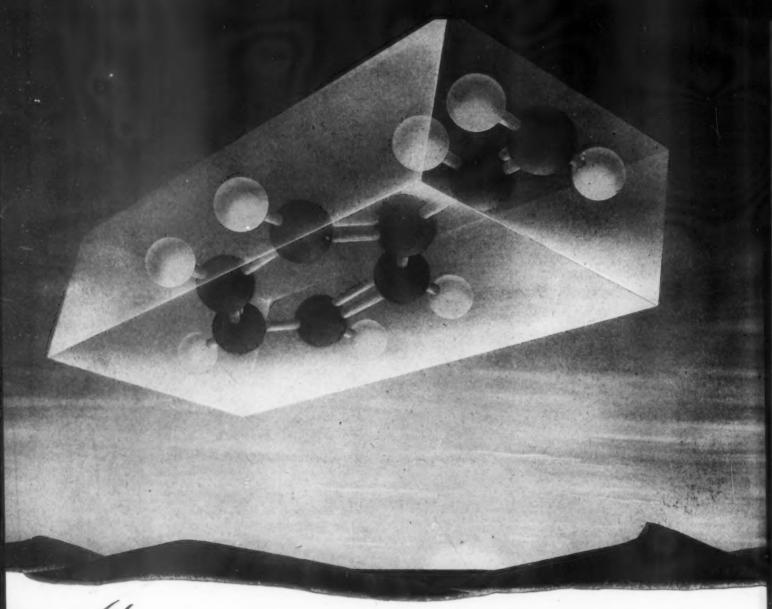


... Rubber and bitumi us plastics; and synthetic resin plastics ... Beetle, Bakelite, Durez, etc.



FARRICATING

... Complete equipment for drilling, punching, saw-ing, turning, milling, etc.



# How to make an old chemical yield new tomorrows

The need for smokeless powder in the first World War led to the creation of an enormous capacity for making nitro cellulose . . . and the efforts to find peacetime uses for that output blossomed into the great American cellulose industries with their plastics, lacquers, and many other products. All these things gave employment to thousands of people and to millions of capital.

History seems to be repeating.

The need for synthetic rubber in the second World War led to the creation of a great output of styrene. Now styrene is a building block for chem-

ists. One of its great advantages is its ability to unite freely with other chemicals to form compounds. It is not new. It has been known for years. But before the war the output was about 500 tons a year; today there is 200,000 tons capacity. Chemists are working to turn this huge styrene supply into new plastics, new paints, lacquers, waterproofing compounds and perhaps even into insulation.

And more styrene will mean more polystyrene, a clear, transparent glasslike plastic which has multitudes of uses.

Koppers built and operated, for the

Federal Government, one of the huge styrene plants as part of the wartime synthetic rubber program. This company has recently purchased that styrene plant from the Government and will add to it a plant for the manufacture of polystyrene.

Thus Koppers is enlarging its service to the chemical and plastics industries.

--Koppers Company, Inc., Koppers Building, Pittsburgh 19, Pa.





(Continued from page 16)

of the synthetic rubber industry in the

42. MATERIALS HANDLING - "Efficiency and Economy in Materials Handling" is title of pocket size, 148 page Catalog No. 444, just released by Barrett-Cravens Co. Products include lift-trucks, skids, stacking frames, lifting tables, die tables, work benches, portable elevators, hoists, canes, dollies, bar stock racks, and other conjument.

☐ 43. CHEMICAL Words, Terms. Phrases—Pocket size glossary of Technical Words, Terms and Phrases used in the Plastic and Rubber Industries, has been issued by the B. F. Goodrich Chemical Co., division of the B. F. Goodrich Co. You may find this quite helpful.

44. POWER TRANSMISSION. Conveyors

"Off the shelf service" is the big feature
of general catalog just issued by the Patron
Transmission Co. Lines include speed reducers, gears, belts, chain drives, bearings,
flexible couplings, pulleys, motors, power and gravity conveyors, etc.

1 45. WIRE & CABLE DUCT-NEW catalog issued by National Electric Products
Corp., describes and illustrates 4 x 4
Wirewa, enclosed metal duct for housing
and protecting electric wires and cables.
Installations within a floor or directly to a wall are illustrated, along with details on utilization to meet N. E. C. requirements for power and light distribution.

1 46. CONTROLS -- New-Matic Remote Transmission Systems for applications where electrical transmission for indicating, recording and control of temperature, pressure, flow and liquid level is neither desirable nor permissible, are described in new catalog No. 5902 just issued by the Brown Instrument Co. Section is devoted

47. SAND BLAST HOSE\_"Extra-tough" sand blast hose, Monarch brand, is the subject of four-page folder released by Hewitt Rubber Co. Both the inside tube and cover are compounded to resist the abrasive action of sand. Hose is said to be highly flexible.

☐ 48. EYE PROTECTION — Complete us sortment of eye protection equipment for every application is described in detail in a colorful new 8-page bulletin No. CE29, published by Mine Safety Appliances Co.

49. PLASTIC VENEERS — Full-color booklet available from The Meyercard Co., illustrates the industrial uses, flexibility and application of the company's wood and marble creations in plastic veneer, tradenamed Sans-Arb and Sans-Marb. Finishes are resistent to wear, abrasion, alcohol, impact or contant washing, applicable to wood metal, composition or plastic surnot, impact or constant washing, applicable to wood, metal, composition or plastic surfaces, may be specified. Application can be made to flat metal before die shaping or drawing. The new product can be used as all-over finish, as banding, or trim, or in combination with inlay.

So. WHEELDEX—Bulletin (with sample cards) describes the Wheeldex rotating card index units for inventory, production, sales, purchase, credit records, etc. Thirty models are available: 3,000 to 10,000 cards capacity cabinet models; portable desk top units, which will carry 1000, 2000 or 2500 cards; and Curve-Dex tray models which handle 1000 records of all sorts or groups of cards removed from the Wheeldex units for special work.

☐ 51. STAINLESS STEELS—Stock list No. 501 issued by the Joslyn Mig. Supply Co. covers Rounds (5/16" to 8"); Hexagons (3/16" to 2-3/8"); Rectangles (7/64 x 15/32" to 2 x 2-1/4"); Squares (11/32" ■ 3"); Angles and Channels.

52. WOOD TANKS - "Of special in-S2. WOOD TANKS — "Of special inerest to the Purchasing Agent" says the Acme Tank Manufacturing Co., is new bulletin "Special Shaped Wood Tanks and Specialties" just released. It gives complete engineering data and illustrated wide variey of special shaped wood tanks, pipe and fittings (all wood), cooling towers, filter plates and frames, wood spigots and players att.

Complete data on pressure reducing, differential and overflow valves for steam, air or gas services is contained in Bullettin 461, 20 pages, just released by the Leslie Company. Easily read "ready reference" index chart simplifies selection of valves for specific industrial applications. Recommended installations are shown for remotely adjusted valves, valves with internal ports, and valves designed for external control.

54. STOCK FLANGES—Stock Flange list No. 225 has just been released by Kropp Forge Co. This 16-page bulletin illustrates and describes forged steel angles of various types, and includes sectional drawings and complete specifications. Tables show American Standards for threads, dimensions of wrought pipe, working and bursting pressures of wrought steel pipe.

S5. LOCK WASHERS — Buyers of lock washers will find of practical value book entitled "How, Why and Where of Lock Washers" published by George K. Garrett Co., Inc. Information deals with Spring Lock Washer Specifications, use of spring lock washers to compensate for bolt and screw stretching, as bearings, with lock nuts, to defeat rust and corrosion, safeguard against vibration, etc. Garrett offers complete line of flat and lock washers from No. 0 to 2" in all materials and finishes.

☐ 56. ADHESIVES—Folder of eight pages issued by Paisley Products, Inc., is designed to help industrial users and buyers of adhesives gain a clear understanding of the various types of adhesives and their receives.

57. DRILLS. REAMERS—Catalog #100, 202 pages, covers the Whitman & Barnes line of twist drills, punches, special tools, drill sets, drill blanks, chucking reamers, high speed taper reamers for drill sockets, straight shank interchangeable counter-

□ 58. SIGNS — Circulars describe room number, direction indicators and other types of signs for office buildings, hotels, hospitals, etc. Stock items, unmounted, 2" x 10", include large variety from "Private" to "Men's Room", "Push", "Manager", etc. Plaques are made of black satin-finish lamicoid, laminated over a sheet of eggshell white. Letters are engraved through the black into the white. Winters Stamp Mia. Co.

☐ 59. SYNCHRONOUS MOTOR — Powerful, small, precision built self-starting synchronous motor of high operating efficiency

(Continued on page 20)

Will Be Poid

1

uge ime om-

that

and

anu-

vice ries. pers

BUSINESS REPLY CARD
Pires Chase Permit No. 16734, Soc. 516, P. L. & R., New York, F. Y.

### PURCHASING

205 EAST 42nd STREET NEW YORK 17, N. Y.

Ask "Purch" Dep't.



Dear "PURCH".

Send me the Literature checked below:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 1 17 18 19 20 21 22 23 24 25 26 27 28 28 30 3 33 34 35 36 37 38 39 40 41 42 43 44 45 46 4 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 6

70 71 72 73 74 75 76

NAME	 Tille
COMPANY	***************************************

CITY..... STATE....



(Continued from page 19)

known as the Cramer SX is described in bulletin issued by the R. W. Cramer Co. Size is 2%" x 2%" x 1½"; torque, 30" cunces at 1 rpm; power input is low, namely, 2.7 watts at 115 or 23 v, 60 c. Twenty-eight standard gear trains, ranging in speeds from 80 rpm to 1 revolution in 24, make motor adaptable to wide variety of applications. Motor is intended for applications which require a constant speed at a given frequency.

☐ 60. SHEET FELTS — Data Sheet No. 9 issued by the American Felt Co. defines and explains the live standard types and four grades of sheet felt, and outlines methods of testing for various characteristics. Tables are included to assist in the selection and specification of sheet felt for any job where uniformity or physical requirements cannot be met by available standard roll felts.

□ 61. PLANT MAINTENANCE — Whistle-clean, a 100% active, water-soluble industrial cleaner and detergent, is described in 6-page folder released by the American Oil & Disinfectant Corp. Whistleclean a said to be effective for all types & wood and concrete floors, tile, marble and terrazzo surfaces, and all types of glassware, metal equipment and machinery.

☐ 62. PROTECTIVE COATINGS — Bulletin on Bitumastic protective coatings, issued by Wailes Dove-Hermiston Corp., is termed a "visual index" of industrial applications. Composite drawing of a factory shows where Bituminastic and Bituplastic products can be used to prevent corrosion.

☐ 63. SMALL GEARS—Four-page catalog lilustrates and describes the many types and applications of small gears from 12 to 96 d.p. Gear Specialties.

☐ 64. FLOOR CLEANING Equipment — Line of commercial floor cleaning equipment is covered by 16-page catalog No. 946, issued by Geerpres Wringer, Inc. Mop wringers, tanks, etc. are illustrated and described. Sing computer, designed to give hookers an accurate yardstick with which to determine maximum safe load that a sling chain can lift at any given angle, is available from the S. G. Taylor Chain Co., without cost It is printed on plastic.

☐ 86. VOUCHER FORM — Voucher form which provides vouchering and distribution in one operation, gives daily departmental balances and monthly comparative and year to date analyses is described in "Accounts Payable and Expense Distribution" bulletin available from the McBee Company. These benefits are made possible without altering existing payment records or routine.

Gr. POWER UNIT — Packaged power unit, known as Link-Belt Electrofluid Drive, is described in Book No. 2085 of photographs, charts, horsepower and torque ratings, weights, and dimensions necessary for determining how new drive will fit into a specific layout. It is a neat, compact, motorized hydraulic combination consisting of general purpose are induction motor flange mounted on a sturdy housing containing a hydraulic coupling called "fluid coupling". Shaft may be direct connected to machine or to a speed reducer unit, by chain, gear or belt drives. Link Belt Co.

☐ 68. PACKAGING—"Kimpak Float Packaging" is title of bulletin describing Kimpak for interior packaging of wide variety of products from chemicals to furniture, fruit and machinery. Kimpack, tough yet resilient, is made in multitude of specifications, some as thick as 1½"; some as thin as .01". Some absorb up to 16 times their own weight in water; others are water repellant and will float indefinitely. Kimberly-Clark Corp.

G9. HIGH SPEED DRILLS—New "Mechanics Length" high speed drill, 15% shorter than jobbers length, designed for faster feed and greater strength is described in Bulletin RM-1 issued by Republic Drill & Tool Co. Drills available in fractional sizes from 1/16" to ½" dia. and wire gauge sizes from No. 1 through No. 34.

Two stage PUMPS—Ball bearing type DMD, two-stage pumps, in capacities from 75 to 700 gpm for heads from 175 to 400 ft, at 1750 rpm, suitable for all clear water surfaces where pressures of 100-170 pounds are required, are described in Catalog C746 issued by Economy Pumps, Inc.

71. ROOFING-SIDING — Illustrated circular describing Plasticlad, an alloy-steel electrostatically coated rooting and siding material is available from The Reliance Steel Products Co. Toughness of the copolymer resin coat, immunity to atmospheric corrosion or chemical attach and high fire resistance are listed as among merits of the material.

☐ 72. CHAIN HOISTS—Bulletin describes
Model Y-C ball bearing, spur-geared chain
hoists made by the Coffing Hoist Co. Capacities range from ½ ton to 8 tons.

☐ 73. AMPCO EXTRUSIONS — Ampco Metal and Ampcoloy bronze extrusions are covered by new Bulletin 64B recently issued at Ampco Metal, Inc. These include rounds and shapes, rolled metal sheet, hollow bars and swaged rod. Extruded products are machine straightened or drawn so as to be suitable for screw machine work.

☐ 74. MIDGET PUMP—Bulletin describes the Superdraulic Midget pumps of single compact design in models light enough for a man to handle, with a continuous duty development of 5,000 psi and 40 hp. Pumps are produced in two pumper sizes delivering 0 to 12 apm at 5000 psi or 0 to 17 apm at 3500 psi. Two models are available, constant delivery and variable delivery. Superdraulic Corp.

Price Bulletin No. 34 describes Caraco flexible cements for bonding a variety of materials. These are white with water dispersions of casein and synthetic rubber supplied as medium or heavy-bodied liquids ready to use. Five types are listed, for gluing metal plastic or other non-porous material to wood, paper, etc.; plastic to wood; liners into bottle caps; laminating of aluminum foil to paper, and for hard to glue surfaces—varnished papers, acetate films, etc. Casein Co. of America.

"Scotchlite, Reflective Sign Sheeting Is title of booklet issued by the Minnesota Mining & Mig. Co. on the reflective characteristics of "Scotchlite", which is available in three colors—white, yellow, silver. As it is made in sheet form, it can be made to reflectorize entire sign surface, and signs have the same shape, color and legend at night as they do in the daytime.

1/47

ostage
Be Paid
by
rchasing

No Postago Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

### **PURCHASING**

205 EAST 42nd STREET
NEW YORK 17, N. Y.

"Purch" Dep't.



Decr "PURCH",

Send me the Literature checked below:

1 2 3 4 5 6 7 8 8 10 11 12 13 14 15 16 17 18 18 19 20 21 22 23 24 25 26 27 28 28 30 31 32 33 34 35 36 37 36 39 40 41 42 43 44 45 46 47 48

49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 68 70 71 72 73 74 75 76

NAME	Núe
COMPANY	• • • • • • • • • • • • • • • • • • • •
ADDRESS	
CITY	Zone STATE



• Always at your service, the keen, experienced eyes and the wealth of imagination of General Industries' engineers see far beyond the cold lines and specifications of blueprints. Because of their expertness at design interpretation they visualize all the precision, smooth touch

appeal and eye-catching glamor you require of molded plastics.

For the sales stimulus and profitable satisfaction you get from really fine plastics molding, take a lease on our "X-ray eyes". Consult us without obligation.

CHICAGO: Phone Central 8431
INDIANAPOLIS: Phone Market 7973
CAMDEN: Phone 2215
DETROIT: Phone Madison 2146
BUFFALO: Phone Grant 8567



Department PR •

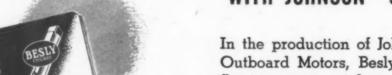
Elyria, Ohio



go nautical. WITH JOHNSON "SEA HORSES"

> Profitable Facts For

Tap Users



This handy booklet offers useful information on taps and tapping procedures. It's written by shop men for shop men. Tap fits and drill sizes are listed in detail. Write today on your own letterhead for your copy—free.

In the production of Johnson's famous "Sea Horse" Outboard Motors, Besly Taps contribute to smooth, flowing power and sturdy endurance by precision threading of many component parts.

Ashore or afloat—for more than 50 years—threads cut by Besly Taps have aided top performance and functional dependability for machinery, equipment and other products from hundreds of America's leading industries.

Ask your distributor about Besly Taps and Besly Tap engineering service.

BESLY

BESLY TITAN ABRASIVE WHEELS BESLY GRINDERS AND ACCESSORIES

CHAS. H. BESLY & COMPANY, 118-124 N. Clinton St., Chicago 6, Illinois . Factory: Beloit, Wis.

oes your equipment require perfect timing and coordination? Do you have shafts turning on long or short centers? Do you want motion in either direction without slip or creep? Do you need a drive for fractional hp or 1000 hp? From  $\frac{3}{8}$ " to  $2\frac{1}{2}$ " pitch, from single to quadruple width, LINK-BELT offers you a full range of precisionmade, light-weight, flexible Silverlink Roller Chain.

You should have data book No.1957 within arm's reach!

LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices, Factory Branch Stores and Distributors in Principal Cities.

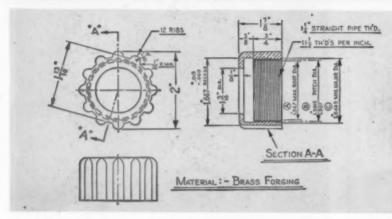


# SGGWIII NON-FERROUS FORGINGS

# When SCOVILL becomes your METAL-PARTner... MACHINED FORGINGS AT LOWER COST THAN BY PRESENT PRODUCTION METHODS MAY BE POSSIBLE

Originally, this brass packing nut was a screw machine item, requiring 1168 lbs. of special shape rod per thousand pieces. By changing to forging, Scovill cut down the amount of metal to 619 lbs, per thousand—a two-way saving, because of the lower cost of the forging rod.

But Scovill economy is concerned not only with savings in materials. Our modern machining equipment also saves time in the production of forgings. The net over-all saving in this particular case was about 75 per cent.





Are you completely satisfied with the brass, aluminum or other non-ferrous metal parts you're now using? If you think there's room for improvement in their design, quality or cost, it would be a smart move to put your problems up to Scovill. Our long and varied experience in non-ferrous forgings has aided many manufacturers by providing them with either better products or lower costs. Let us put that experience to work for you.

#### GET THE FACTS

We'll be glad to send full details on how you can benefit by making Scovill your METAL-PARTner. Just fill in the coupon below and mail it today.

Scovill Manufacturing Company, Waterbury 91, Conn. Export Department: 405 Lexington Ave., New York 17, N.Y.

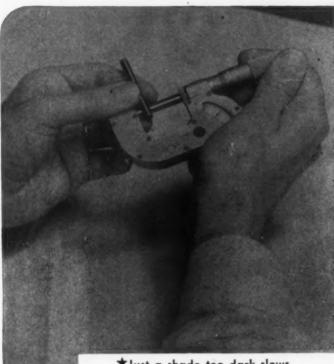




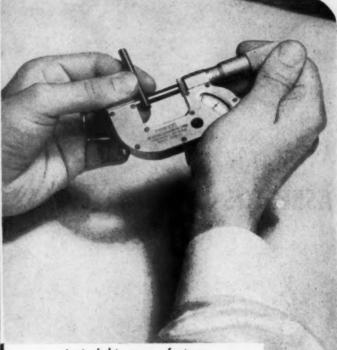
Please send me information about your metal-working facilities. I am interested in non-ferrous forgings for the applications checked:		SCOVILL MANUFACTURING COMPANY Forgings Division
Aircraft Automobiles Band Instruments Blow Torches Cameras Communication Equipment Compressed Gas Cylinders	Fire Extinguishers Household Appliances Industrial Instruments Plumbing Goods Pumps Valves Welding Equipment	21 Mill Street Waterbury 91, Connecticut  Name Company
Other applications		Address

# BORDERLINE VISION\*

Means Production Line Slow-Downs



**★Just a shade too dark slows** down your workers.



Just right means faster, better work.

# For Faster, Better Work **Install Wheeler Skilled Lighting!**

Borderline Vision is hard to spot at a glance. But watch out . . .

Every time a worker in your plant has to stop for a second look - you lose money! Every time he fails to stop and the work is wrong - you lose money! Lighting just a shade too dark causes little slow-downs that add up to an

expensive lag in production.

For 65 years Wheeler has specialized in light engineering that eliminates lighting handicaps. Wheeler Reflectors are engineered to control light. Their special, high reflection factor gets maximum illumination from standard lamps. And their rugged, porcelain, enamel-coated construction means long service and easy maintenance.

Better work and reduced costs are almost automatic when you install Wheeler Skilled Lighting. Learn why! Write today for facts on the full line of Wheeler incandescent and fluorescent lighting fixtures. Wheeler Reflector Company, 275 Congress St., Boston 10, Mass. Representatives in New York and principal cities.

Distributed Exclusively Through Electrical Wholesalers



All-Steel Open-End Fluorescent Unit

Available for two or three 40-watt, or two 100-watt lamps. Broad wiring channel with accessible, enclosed ballast. Mounts from chain or conduit, individually or in continuous runs.

**RLM Solid Neck Incandescent Reflecto** 



Wheeler Reflectors

ECIALISTS IN LIGHTING EQUIPMENT SINCE

ASBESTOS IN ACTION

you should know more about

K&M "Century" **ASBESTOS CORRUGATED** 

If you are planning repairs, remodelling, or new construction, the choice of building ling, or new construction, the choice of building materials is all-important to you. Here are six compelling reasons why record to be the ideal Asheston Corrugated has proved to be the ideal compelling reasons why K&M Century
Asbestos Corrugated has proved to be the ideal Aspestos Corrugateu mas proved to maindustrial siding and roofing material:

1. Corrosion-proof . . . "Century" Corrugated resists the effects of rust, corrosion, smoke, gated resists the effects of rust, corrosion, smoke, soot, moisture, oil, other conditions so destructive to ordinary building products. 2. Weather-proof . . . withstands the worst

the elements can bring.

3. Fire-resistant . . . it cannot burn, and it helps prevent spread of fire. 4. Speedily installed . . large easy-to-work hold labor costs

unit sizes speed construction, hold labor costs to rock-bottom.

Extremely strong ... corrugations build extra structural strength into rugged asbestoscement composition. It actually grows tougher with age.

6. Maintenance-free . . . first cost is last with age.

cost. Never needs painting, will not warp, It will pay you to send for full descriptive matter It will pay you to send for full descriptive matter on "Century" Asbestos Corrugated and Flat Lumber. Just write us, we'll put it in the mail at once. rot, or decay. at once.

This tall mining headhouse will withstand a lifetime of beatings from wind, weather and other tough conditions. It's completely sheathed with "Century" Asbestos Corrugated.



Nature made Asbestos . . .

Keasbey & Mattison has been making it serve mankind since 1873

BEY & MATT COMPANY · AMBLER · PENNSYLVANIA



This Staples special design step reamer proved the economical solution to the precision reaming problem shown above. Reaming operation was done in turret lathe. To obtain the perfect concentricity and alignment required, the rear section of the tool has a specially modified 90° end sharpening-this causes tool to cut with end milling action, thereby correcting misalignment between the two diameters present after drilling.

In the production of these shaft housings, this Staples reamer combined both reaming operations-maintained perfect concentricity

between diameters-held consistently to the close tolerances specified—and produced an excellent finish in the hole.

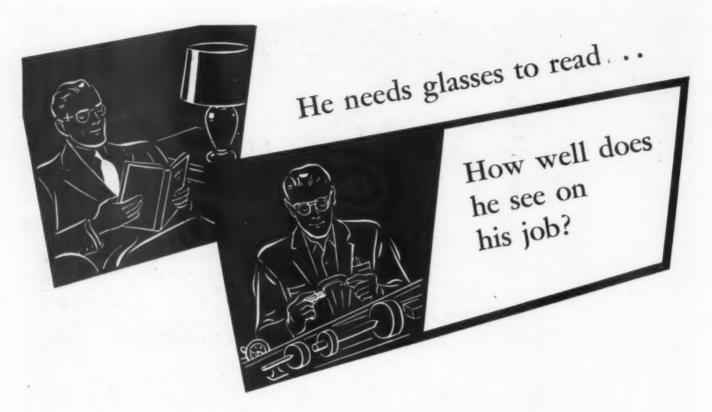
Staples Special and Standard tools provide the answer to economical hole production. If your production involves special tool designs, submit your specifications and part prints to Staples Tool Engineers—we welcome the opportunity to assist you to obtain maximum efficiency in precision hole production.

THE STAPLES TOOL COMPANY **CINCINNATI 25** OHIO



taples CARBOLOY-TIPPED CIRCULAR CUTTING TOOLS

REAMERS · CORE DRILLS · SPOT FACERS · COUNTERBORES END MILLS . SHELL END MILLS . DISTRIBUTORS IN MAJOR CITIES



IF YOUR eye safety program is designed only to protect workers' eyes, you may be missing the big balf of a complete visual safety program. Industrial studies show that at least half of all workers need eyesight correction. Industrial eyewear, incorporating correction professionally

prescribed for the requirements of every job, prevents "I-didn't-see" accidents (and increases worker productivity.) Your Bausch & Lomb distributor offers prescription service on industrial eyewear—visual protection and correction for your workers.

## SAFETY FACT-FINDING CASE HISTORY...



BEFORE Ortho-Rater Visual Performance Standards



AFTER Ortho-Rater Visual Performance Standards



40% SAVING



This is the actual record of one department of a Bausch & Lomb Industrial (Occupational) Vision Service subscriber. The feature of this service is the Ortho-Rater system of visual performance measurement and the corollary fact-finding system as a basis for visual standards. In addition to improving safety records, the Industrial Vision Service contributes to increased production, improved quality, reduced labor turnover, and lower training costs.

Write for descriptive bulletin.

BAUSCH & LOMB

OPTICAL COMPANY



ROCHESTER 2, N.Y.



**HASSALL** cold-heading may solve your immediate special part problem ... Special nails, rivets and threaded parts made in diameters from 1/32" to 3/8"—lengths up to 6"... Rivets 3/32" diameter and smaller a specialty ... Variety of metals, finishes and secondary operations ... Economy, quality and quick delivery in large or small quantities ... Tell us what you need ... We will answer promptly. ASK FOR FREE CATALOG. 3-color Decimal Equivalents Wall Chart free on request.



JOHN HASSALL, INC. • 404 OAKLAND STREET, BROOKLYN 22, N. Y.



MANUFACTURERS OF COLD-HEADED SPECIALTIES-ESTABLISHED 1850

for example:

# selective reinforcemer

The bursting stresses in an elbow subjected to internal pressure are known to be greatest at the crotch or inner arc. Mathematical calculations (see formula below) show how much greater the stress is in this region of an elbow, and the calculations have been closely con-

This is taken into consideration in forming firmed by experiments. WeldELLS. As shown in the sectional illustration, extra wall thickness is provided at the inner arc to offset the added stress imposed.

There is no better evidence than this of the extra lengths we have gone to in engineering WeldELLS for full strength throughout. But there are plenty of other evidences of extra operations—extra value—that are yours only in WeldELLS and other Taylor Forge fittings

A number of these extra value features are for pipe welding. listed opposite. Combined only in the fittings that "have everything", these features mean greater soundness, speed and economy when your pipe welding is done the WeldELL way.

# TAYLOR FORGE & PIPE WORKS

General Offices & Works: P. O. Box 485, Chicago New York Office: 50 Church Street Philadelphia Office: Broad Street Station Bldg. Los Angeles Office: Oviatt Bldg.

FULL WALL THICKNESS HERE

> REINFORCED HERE

#### WoldELLS alone combine these features:

- · Seamless-greater strength and uniformity.
- Tungents—keep weld away from zone of highest stress—aimplify lining up.
- Precision quarter-marked ends—simplify layout and help insure accuracy.
- Selective reinforcement provides uniform
- Permanent and complete identification marking saves time and eliminates errors in shop and field.
- Wall thickness never less than specification minimum—assures full strength and long life.
- Machine tool beveled ends—provides best welding surface and accurate bevel and land.
- The most complete line of Welding Fittings and Forged Steel Flonges in the World—insures complete service and undivided responsibility.

we every

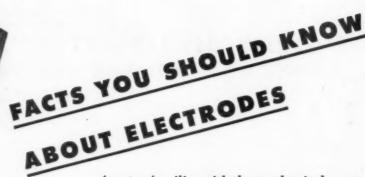


THE Distributors of Johnson Bronze provide a vital, indispensable service to all types of industry. Their convenient location . . . in every industrial center . . . places adequate stocks of UNIVERSAL Bronze Bars and General Purpose Bearings as near as the user's telephone. Their frequent, personal contacts . . . their competent advice . . . their immediate delivery . . . saves manufacturers thousands of dollars a year. In emergency they are available twenty-four hours a day

By selling Johnson UNIVERSAL Bronze and Johnson General Purpose Bearings, our distributors offer the highest quality bearing bronze available. The wide range of sizes enables the purchaser to buy exactly according to his needs. The uniform high quality guarantees the utmost in performance in long bearing life.

Get to know your local Johnson Distributor. You will find his name in the classified section of your telephone book . . . under BEARING BRONZE. Give him a call TODAY.





Are you familiar with the mechanical properties of electrodes? . . . Do you know the different types of electrodes for welding cast iron - mild steel-high tensile, low alloy steels . . . which electrode will do the job better, faster - at less cost?

This, and other vital information is all contained in Airco Catalog No. 120. Compiled by leading technicians in the field, this definitive work gives authentic, understandable information on electrodes . . . application, welding procedure, mechanical properties and specifications are thoroughly covered.

Every metal man will find almost daily use for this big, helpful manual. It will save him time, effort and needless worry. It will answer almost any question regarding the proper electrode for welding any particular base metal - for any given type of work.

Send for this valuable, informative guide today! Just fill in the coupon, and mail it to: Air Reduction, General Offices, 60 East 42nd Street, New York 17, N. Y. In Texas: Magnolia Airco Gas Products Company, General Offices, Houston 1, Texas. Represented Internationally by Airco **Export Corporation.** 

REDUCTION 60 E. 42nd Street New York 17, N. Y. Please send me a copy of Catalog 120.

Firm.

AIR

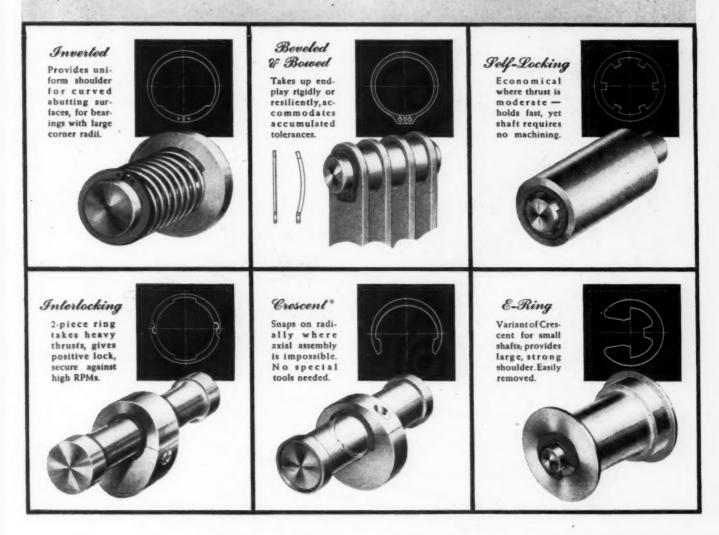
Zone State



Offices in All Principal Cities

HEADQUARTERS FOR OXYGEN, ACETYLENE, AND OTHER GASES...CARBIDE...GAS WELDING AND CUTTING APPARATUS AND SUPPLIES . . . ARC WELDERS, ELECTRODES AND ACCESSORIES.

# Precision fastening for any need: Waldes Truarc Special-Type Retaining Rings



• There's a Waldes Truarc precision-engineered ring to answer every need. Truarc Retaining Rings give a never-failing grip because of their mathematically precise construction. No matter how demanding your specifications, it's a simple matter to refine your present designs to save material, machining and assembly costs. Waldes Truarc engineers will help you, will give your particular problem individual attention without obligation.



TAINING RINGS

WALDES KOHINOOR, INC., LONG ISLAND CITY 1, NEW YORK

#U. S. PAT. 2.382.948

Waldes Kohinoor, Inc., 47-10 Austel Place Long Island City 1, N. Y., Dept. \$0-1

Please send Catalog No. 4 on Truarc Retaining Rings to:

Company\_ Address.



# Accurate Service includes helping you select the right spring for your job -

Springmaking craftsmanship is important. But so is proper application of spring power. For example: A change in spring specifications may improve product performance, increase spring life, lower spring costs, or even shorten assembly time. We, here at Accurate, recognize how important it is to apply spring power properly. What's more, we've the long and varied

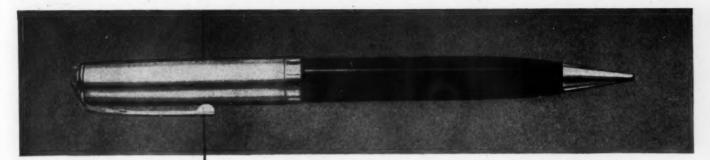
experience and the practical spring engineers necessary to help you We have also, the spring craftsmen and modern facilities use spring power efficiently and economically. to make your springs the way they should be made. Find out for

yourself. Accurate Spring Manufacturing Co., 3825 West Accurate

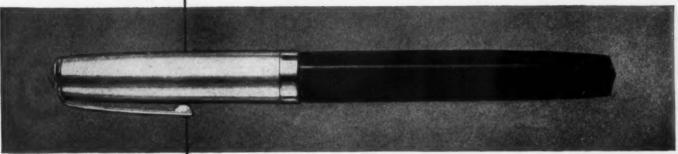
Lake Street, Chicago 24, Illinois.

SPRINGS • WIRE FORMS • STAMPINGS





#### trick of the month! tubing



Courtesy of Paramount Pen Co.

Among the many unique features of the illustrated pen and pencil is a cap of swedged stainless steel tubing. Note the fine finish . . . the graceful design. How it's done is a trick well worth knowing.

These caps work push-pull, on a snug fit without threading. To Frasse engineers, the necessary I.D. tolerance of +.001-.000 was easy enough to lick - even in mass production.

But the swedging of type 304 stainless tube was a taller order. Sure, hard temper tube would work-provided it was annealed first. Trouble is, annealing thousands upon thousands of caps costs money-plenty! Softer tubes, although dispensing with annealing, had the equally costly habit of collapsing under the swedge. The final answer, found by Frasse technicians after weeks of shoulder-to-shoulder work with the fabricator, was a tube of welded stainless cold rolled strip, redrawn to a nicety - providing the exact temper that would swedge without caving in, yet dispense with the costly heat treatment.

Frasse, you see, distributes every kind of mechanical tube-so Frasse field men don't have to play favorites. Whether you want alloy, carbon or stainless tube - or practical help in its use-you're safe in calling on Frasse. Peter A. Frasse and Co., Inc., 17 Grand Street, New York 13, N.Y. (Walker 5-2200) • 3911 Wissahickon Avenue, Philadelphia 29, Pa. (Radcliff 5-7100) • 50 Exchange Street, Buffalo 3, N.Y. (Washington 2000) • Jersey City · Syracuse · Hartford · Rochester · Baltimore



for tubing

ALLOY

In ANY V-Belt That Get the It's the

The moment you look at a V-Belt in its sheave you see at once that the sides of the belt do all the gripping on the pulley and get all the wear against the sheave-groove wall.



Notice, too-it's the sides that pick up all the power delivered by the driver pulley. The sides transmit that power to the belt as a whole. And then, once more, it's the sides-and the sides alone-that grip the driven pulley and deliver the power to it.

The fact that the side is the part that does the work and gets the wear explains why you have always noticed that the sidewall of the ordinary V-Belt is the part that wears out first. Naturally, then, when you

lengthen the life of the sidewall you lengthen the life

The simple diagrams on the right show exactly why the ordinary, straight-sided V-Belt gets excessive

wear along the middle of the sides. They show also why the Patented Concave Side greatly reduces sidewall wear in Gates Vulco Ropes. That is the simple reason why your Gates Vulco Ropes are giving you so

much longer service than any straight-sided V-Belts can

Now that Gates Specialized Research has resulted in V-Belts having much stronger tension members-tension members of Rayon Cords and Flexible Steel Cables,

NOW MORE IMPORTANT Than Ever Before!







Straight Sided V-Belt



How Straight Sided V-Belt Bulges When Bending Around Its Pulley



You can actually feel the bulging of a straight-sided V-Belt by holding the sides between your finger and thumb and then bending the belt. Naturally, this bulging produces excessive wear along the middle of the sidewall as indicated by arrows.

Gates V-Belt with Patented Concave Sidewall



Showing How Concave Side of Gates V-Belt Straightens to Make Per-fect Fit in Sheave Groove When Belt Is Bending Over Pulley



No Bulging against the sides of the sheave groove means that sidewall wear is evenly distributed over the full width of the side-wall—and that means much longer life for wall—and the belt!

to transmit to the pulley much heavier loads. Naturally, with heavier loading on the sidewall the life-prolonging Concave Side is more important today than ever before! THE GATES RUBBER COMPANY, DENVER, U.S.A. World's Largest Makers of V-Belts

among others-the sidewall of the belt is often called upon

and Jobber Stocks

of the belt.

possibly give.

Longer Sidewall Wear Is

ALL INDUSTRIAL CENTERS of the U. S. and 71 Foreign Countries



THE MARK OF SPECIALIZED RESEARCH

Tapered FIMKEN



Roller

BEARING

**EQUIPPED** 

Production Booster

TIMKEN
TANER ROLLER DEARINES

THE TIMEN ROLLER BEARING COMPANY, CANTON 6, OHIO

# MORSE

that

MORSE No. 1833.

Side Milling Curror—For general straddle milling, slotting, and side milling.

MORSE No. 1809.

Alternate Tooth Side Milling Cutter
For deep slotting, keyway, and
heavy-duty milling. Teeth of alter
heavy-duty milling. hand spiral
nate right and left hand
provide shearing action and elimprovide shearing action and sinate side thrust. Cutting action is
smooth and rapid.



MORSE No. 1830.

Plain Milling Cutter—For light, smooth-finish cuts in cast iron, malleable iron, and steel. For slabbing work which is narrower than the cutter.

MORSE No. 1802.

Heavy-Duty Plain Milling Cutter—Ideal for heavy cuts where considerable stock is to be removed.

# Make the Most of Time

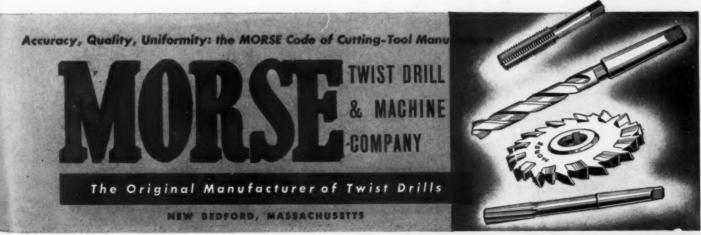


Morse Milling Cutters are designed to make the most of time by giving maximum performance on each job. The result of over 80 years of experience, Morse Cutters are noted for their consistently long

life, smoothness of cut, and high return per sharpening.

Milling Cutters of all kinds are available from Morse. Besides those shown, Morse can supply you with Angle, Convex and Concave Cutters, Woodruff Keyseat and Involute Gear Cutters, as well as any of the other high quality cutting tools in the complete Morse line—End Mills, Reamers, Taps, Dies, and Drills.

Maximum Cutter performance depends upon many factors and only when all these are known can the proper Cutter be selected. You can derive the benefit of our experience by letting Morse help you in the selection of the proper Cutter for your job. Your Industrial Supply Distributor will cooperate in securing a Morse recommendation.



## Short story on superiority



Solid double wall construction provides HIGH FATIGUE STRENGTH when you specify Bundyweld Steel Tubing.



And the use of close tolerance cold rolled strip in this unique tubmeans PRECISE ing DIMENSIONS.



Because it's extra tough, Bundyweld gets wide recommendations for RESIST-ANCE TO BURST-ING in pressure appli-



Finally, Bundyweld combines strength with great DUCTILITY to offer extreme ease in fabrication.

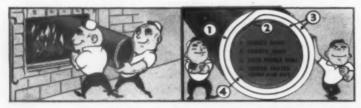
#### WHY BUNDYWELD IS BETTER TUBING



Bundyweld Steel Tubing is made by a process entirely different from that used in making other tubing. A single strip of copper-coated S.A.E. 1010 steel is con-tinuously rolled twice laterally . . .

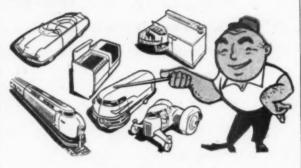


2 into tubular form. Walls of uniform thickness and concentricity are assured by the use of close tolerance cold rolled strip. This double rolled strip passes through a furnace where the



. . . copper coating fuses and alloys with the double steel walls. After brazing and cooling, it be-comes a solid double wall steel tube, copper brazed throughout 360° of wall contact . . .

copper coated inside and out. free from scale, closely held to dimensions. Hard or annealed in standard sizes up to  $\frac{5}{8}$ " O.D. Special sizes cold drawn. Also in Monel, nickel and nickel alloys



That's why Bundyweld is specified for hundreds of modern products ranging from refrigerators and gas ranges to motor vehicles and Diesel engines. Wherever the call is for outstanding mechanical properties, investigate Bundyweld Steel Tubing. Also available in nickel and Monel. Write: Bundy Tubing Company, Detroit 14, Michigan.



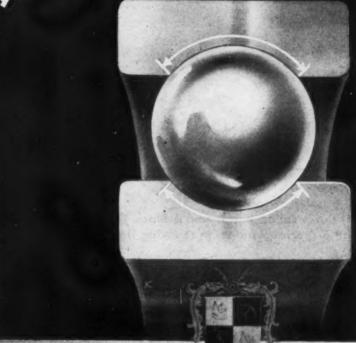
-BUNDY TUBING DISTRIBUTORS AND REPRESENTATIVES:

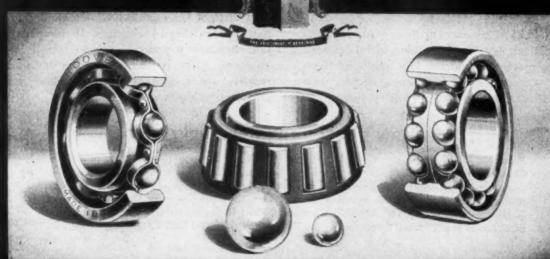
Pacific Metals Co., Ltd. Standard Tube Sales Corp. Lapham-Hickey Co. 3100 19th St. 1 Admiral Ave. 3333 W. 47th Place San Francisco 10, Calif. Maspeth, N.Y.C., N.Y. Chicago 32, Illinois

Rutan & Co. Eagle Metals Co. 404 Architects Bldg. 3628 E. Marginal Way Phila. 3, Pa. Seattle 4, Wash.

Alloy Metal Sales Ltd. 861 Bay St. Toronto 5, Canada

OF EXCLUSIVE HOOVER FEATURE AND MORE LOAD—LONGER LIFE





BALLS - BALL BEARINGS - ROLLER BEARINGS

HOOVER

BALL AND BEARING COMPANY, ANN ARBOR, MICHIGAN

Upping a pay load



WITH A BAUER & BLACK INDUSTRIAL ADHESIVE TAPE



Lockheed Aircraft Corp. called in a Bauer & Black Technical Consultant for assistance with a special problem in reducing the weight of planes.

PROBLEM: To bind together sections of plastic hot air ducts and other parts without using heavy metal clamps, screws, joints or brackets. A pressure sensitive adhesive tape was wanted-lightweight, strong and able to withstand high temperatures.

SOLUTION PLUS: The extraordinary tape which Bauer & Black developed, working with Lockheed engineers, more than did the job. Industrial Tape No. 263-a superior adhesive mass backed with Fiberglas-is thermo-setting (will vulcanize to whatever it is attached above 260°F.), has high tensile strength, is lightweight and conforms well to contours.

It worked so well on hot air ducts-giving a permanent, airtight seal-that it has been applied to other parts of Lockheed assemblies. It dampens vibration, deadens sound, is easy to install in close quarters. Most important, it has substantially reduced the weight of planes, making way for greater pay loads.

#### How about you - need help?

Bauer & Black Technical Consultants stand ready to help you with your problems. Many manufacturers have benefited, as did Lockheed, from this free service. Often the use of the right Industrial Tape for a job can cut costs, speed production or improve a product. Why not enlist the aid of a Consultant today? Simply write Dept. 91, Bauer & Black, Division of The Kendall Company, 2500 S. Dearborn St., Chicago 16, And don't forget to ask for our free monthly AUTOMOTIVE NEWS LETTER- you'll enjoy it.

Products of

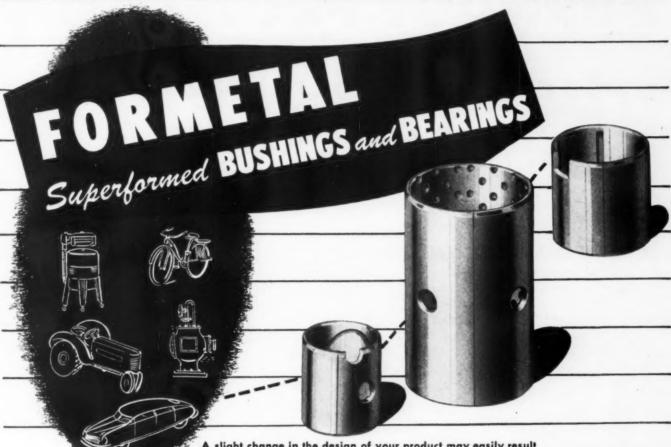
Division of The Kendall Company • 2500 S. Dearborn St. • Chicago 16

#### Industrial Adh sive Tape

Production Short Cuts to Reduce Costs . Research to Speed and Improve Methods



s time to take your BEARINGS



also SPACER TUBES

SLEEVES..FERRULES..TUBES IN SHORT LENGTHS OF ANY METAL OR ALLOY, CAN BE FURNISHED TO SPECIFICATION

A slight change in the design of your product may easily result in tremendously improved performance. The use of FORMETAL bushings or bearings, for example, offers you innumerable ways to increase product efficiency.

Here are a few of their exclusive qualities. In a FORMETAL bushing, a thinner wall provides the same strength as the thick wall of an ordinary bushing. You can secure a higher Rockwell hardness without the loss of machinability. Oil grooves, which are vital to the life of a bushing or bearing, are custom-made to meet your specific need.

FORMETAL bushings and bearings—bronze, steel or alloy of your specification—cost no more; they actually save money in the long run. Send today for Formetal's new free Reference Booklet. If you use or specify bushings or bearings you will find it a valuable help.

for bushings and bearings against the wide range of types illustrated in this compact booklet, Send for it today.



To get your products really rolling



specify ... FORMETAL!

#### METAL CO., INC.

6609 METTA AVENUE

CLEVELAND 14, OHIO

Offices in DETROIT . CHICAGO . NEW YORK . LOS ANGELES . INDIANAPOLIS

NATIONAL FORMETAL CO. INC. 6609 Metta Ave., Cleveland 14, Ohio

Please send free copy of your new catalog.

NAME

COMPANY

ADDRESS

CITY and STATE

# BUSS FUSETRONS

will provide

# BURNOUT PROTECTION

## for COILS-SOLENOIDS-TRANSFORMERS

Simply - Inexpensively - and eliminate costly and troublesome replacement jobs.

# Here's actual proof:

Says the Electrical Engineer of a large midwest company. (Name on request.)

"We were having trouble with solenoid coils that operate remotely controlled DC circuit. breakers. For mechanical reasons the breakers sometimes failed to close and when they did the solenoid coil burned

"New coils cost \$36.00 and in addition we had the trouble and expense of having a man manually operate the breaker

24 hours a day until the coil "We tried small circuit. was replaced. breakers to protect the coils but they failed. A size small enough to protect did not have enough time-lag to let the coil operate. "Then we installed 4 ampere 600 volt Fusetrons. They completely solved our problem. The solenoid coils no longer burn out."

### Eliminate Shutdowns-Keep Things Running

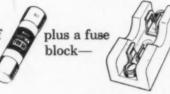
#### The solution is simple with Fusetrons

To safeguard Coils, Solenoids, Transformers, etc., the protective device must have a time-lag long enough to hold normal starting currents or harmless overloads. Yet it must open to protect, should something go wrong.

Fusetrons because they combine a fuse with a thermal cutout can give this kind of protection and prevent burnout of such apparatus.

#### HERE'S ALL YOU NEED TO PROTECT COILS, SOLENOIDS AND TRANSFORMERS.

A Fusetron of proper size,



or a BUSS fuseholder.

On voltages up to 125, the same accurate, dependable protection can be provided with

a proper size plug Fusetron



Fustat.



fuse block

Why risk a costly and troublesome repair or replacement job-and take a chance crippling plant or building operations, when Fusetron protection is so simple and inexpensive?

#### What is the FUSETRON?

The Fusetron is a Dual Element device-a Fuse to which is added a Thermal cutout.

The result is a fuse with tremendous time-lag and much less electrical re-

Fusetrons have the same degree of Underwriters' Laboratories ap-proval for both motor-running and circuit protection as the most expensive devices made.

Made to the same dimension as ordinary fuses, Fusetrons fit all standard fuse holders.

Obtainable in all sizes from 1/10 to 600 ampere in both 250 and 600 volt types. Also in temper-resisting type (Fustats) for 125 volt circuits. Their cost is surprisingly low.

#### **Fusetrons Give Many Other** Kinds of Protection Heretofore Not Available

Fusetrons do everything fuses do, as is confirmed by the Underwriters' Laboratories Label, and in addition . . .

\* Provide simplest way to stop burnouts from single phasing. \* Entirely wipe out needless blows caused by motor starting currents or other harmless overloads. \* Give thermal protection to panelboards and switches. \* Prevent needless blows caused by heating in panels and switches. \* Permit use of larger motor or adding more motors on circuit without installing larger switch or panel. \* On new installa-

> tions, proper size switches and panels can be used instead of oversize. \* Protect motors against burnout. \* Give double burnout protection to large motors. \* Make burnout protection of SMALL motors simple and inexpensive.

#### Get All the Facts

#### Get Better Protection . Send the Coupon Now

Don't risk avoidable losses. One burned out solenoid-or one needless shutdownone destroyed panel may cost you more than replacing every fuse with a Fusetron.

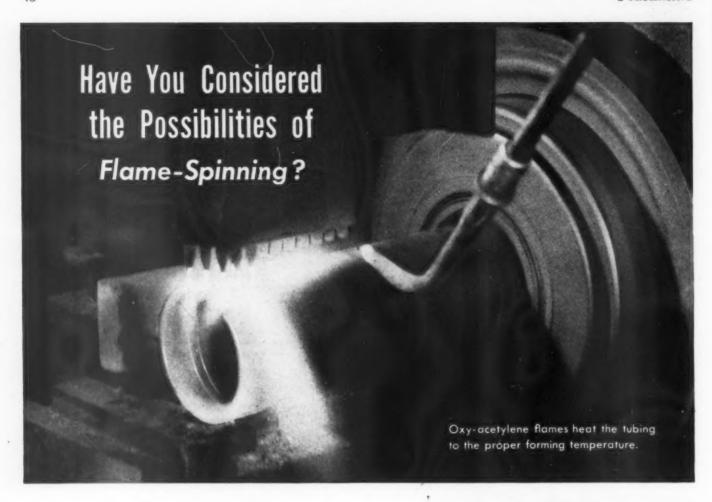
You simply protect your pocketbook by installing Fusetrons throughout the entire electrical system.

BUSSMANN MANUFACTURING COMPANY University at Jefferson • St. Louis 7, Mo.

(Division McGraw Electric Co.)

Sold Through Wholesalers

Bussmann Mfg. Co., U St. Louis 7, Mo. (Divis	niversity at Jefferson sion McGraw Electric Co.)	
Please send me comple	ete facts about BUSS Fusetrons.	
Name		
Title		
Company		
Address		
City	State	



IT is a fast, inexpensive way to form tubular parts. Flame-spinning will partially close the ends of tubing... or make complete closures... or reduce diameters at any point. There is no limit to the diameter of tubing that may be flame-spun, provided the ratio of tube diameter to wall thickness does not exceed 50 to 1.

In the pictures, tubing 3 inches in diameter, made from 12-gage sheet, is being end-formed for use in chemical converters. It takes only 45 seconds to close each tube completely.

Ask a Linde representative to show you how you can use the flame-spinning process'... or write for a copy of the folder, "Flame-Spinning Process," Form 5915.



The flames are withdrawn to allow the forming tool to shape the tube end.



The completely closed tubes are ready for installation in chemical converters.

#### THE LINDE AIR PRODUCTS COMPANY

Unit of Union Carbide and Carbon Corporation

30 E. 42nd St., New York 17, N. Y. The Offices in Other Principal Cities
In Canada: Dominion Oxygen Company, Limited, Toronto

The Easy Way
to Improve
Staliness Laning
-ask EASTERN.

Grinding Weld Zones? What sequence of abrasive grit sizes is best for refinishing a weld zone in E-S 18-8 (Type 302) to a No. 4 polish? How can we prevent a groove at the weld?

Abrasive Type? Are different types of abrasives required for polishing and buffing stainless steels than for other grades of steel?

Blending High Finishes? Practically no polishing wheels are wide enough to cover the area of our product, so highlights show up after final polishing. How can we blend the entire area into a uniform finish?

Electropolishing? What cleaning operations are required before stainless steel products can be electropolished? Will electropolishing remove light weld scale and heat discolorations from stainless?

Passivating Necessary? We generally improve the corrosion resistance of finished stainless steel parts by passivating in 30% nitric acid. Would this be necessary if they were electropolished?

No matter what problems you may have in grinding or polishing stainless sheet or plate—when you need answers, you can get them from Eastern. Whether you are grinding welds in plate . . . buffing sheet to a mirror finish . . . or electropolishing, Eastern technical men can give you help in a hurry. Yours is an open invitation to call, wire; or write us for whatever assistance you may need in fabricating any type of stainless sheet or plate. And, to have a wealth of information always on your desk, ask for your copy of our catalog, "Eastern Stainless Steel Sheets."

Ask
Eastern
for the
Answer
when
Stainless
is the
Question

#### EASTERN STAINLESS STEEL CORPORATION

BALTIMORE 3. MARYLAND



EASTERN STAINLESS

\*One of the most dramatic sagas of the last century was the opening of the territory in Oklahoma known as "The Cherokee Strip."



# 46 Years Before the Cherokee Strip\*... CHASE was manufacturing Better Bags

• At dawn, September 16, 1893, hundreds on horseback, in wagons, and afoot, raced to stake claims in Oklahoma. And many prospective landowners carried precious seed, feed, equipment and supplies in Chase bags.

This year Chase is celebrating 100 years in the bag business. The lessons learned throughout this long experience have been translated into better materials, finer construction, improved manufacturing processes—a more efficient container for your product.

Furthermore, Chase makes bags of all kinds: cotton, burlap, paper, combination paper and cotton, combination paper and burlap, and open mesh. Thus you are assured of impartial advice on the right bag for the specific need... whether it be feed, flour, seed, citrus fruit, produce, dry or wet chemical, fertilizer or building material—whatever your product may be.

Your Chase salesman will be glad to give complete details on any Chase product. Write today.

COTTON BAGS TOP MILL BURLAP BAGS SAXOLIN OPEN MESH BAGS PRO-TEX BAGS MULTIWALL AND OTHER PAPER BAGS PROTECTIVE PAPERS



GENERAL SALES OFFICES
307 WEST JACKSON BLVD., CHICAGO 6, ILL.

BOISE - DALLAS - TOLEDO - DENVER - DETROIT - MINNEAPOLIS ST. LOUIS - NEW YORK - CLEVELAND - MILWAUKEE - PITTSBURGH BUFFALO - KANSAS CITY - MEMPHIS - GOSHEN IND - PHILADELPHIA NEW ORLEANS - ORLANDO FLA - SALT LAKE CITY - OKLAHOMA CITY - PORTLAND, ORE - REIDSVILLE N. C. - HARLINGEN, TEXAS CHAGRIN FALLS, O. - HUTCHINSON, KAN - CROSSETT, ARK.

# filosofy of buying

WHEN cheaper cars come to market, the chances are that you can thank the purchasing department for making it possible. Addressing the Chamber of Commerce at Jefferson City, Mo., a few weeks ago, Ford Vice President E. R. Breech reported a ninemonths deficit in 1946 amounting to 511/2 million dollars due to strikes, shortages of components, and wage increases. The situation has not only shelved the proposed cheaper car, but a research laboratory project, plant expansion, employee retirement plans, and a program for more stabilized employment. Most hopeful feature in this picture is the expectation that penny-saving purchase innovations initiated by P. A. Al Browning, multiplied by an estimated million units of annual production, may make up 20 millions of that amount without sacrifice of quality or performance in the product. Examples cited include new type horn button emblems (saving \$40,000); stainless steel stamped grilles (saving \$101,205); steering wheel trim (saving \$190,000): new type wheels (saving \$104,750); new source for batteries (saving in shipping cost \$127,917). The unit savings which make up these substantial sums range from 8.9c to 49.5c per item.

A MERICA demands slogans to A explain itself. The apt characterization of the Coolidge boom as the era of "profitless prosperity" is a permanent part of our economic vocabulary. Now, a dozen years later, the widely read Business Bulletin of the Cleveland Trust Company describes our current situation as one of "pessimistic prosperity". With employment and farm production at record high levels, industrial production high for peacetime, and national income close to the wartime peak, and retail business booming, business sentiment is "predominantly gloomy" and the stock market is wobbling downward. If depression comes, we certainly cannot complain that it comes as an unexpected guest.

PURCHASING men have become so accustomed to operating under control regulations of one sort or another that it seems entirely natural to refer to present conditions as operating "under decontrol". Or, as it is expressed by some of those who are still under the alphabetical influence, we are operating under NOPA.

NEWSPAPERS gave rather wide circulation to a "gag photo" showing the funeral wake with OPA in its coffin. Presiding as chief mourners in the solemn rites were Leon Henderson and Paul Porter, first and last directors of the late price agency. Life comments on the fact that the National Association of Manufacturers failed to send flowers for the occasion. As a matter of fact, the entire mourners' section was a highly exclusive company — exclusively composed of those who had been on the OPA payroll.

FFECTIVE January 1, the Pro-EFFECTIVE January 1, curement Division of the Treasury Department changes its name to the Bureau of Federal Supply, and the Director of Procurement becomes Director, Bureau of Federal Supply. It's a good descriptive title, and the change-over knocks out one of the most potent arguments for more general use of the 50-cent or high-hat word for purchasing that gained some popularity during the war. From the outset, this has been a matter of mild controversy between the would-be procurement officers and the garden variety of purchasing executives. It has been claimed that "procurement" is a more exclusive term, implying actual delivery of the goods without which the simple purchasing operation is meaningless. On the other hand there are those who interpret procurement as nothing more nor less than expediting, and there is plenty of precedent, both in government and industrial practice, to support this view. But no one can quarrel with the term "Supply". Surely that is inclusive enough to cover the purchasing responsibility in its broadest sense.

ONE of the healthiest signs in postwar purchasing is the revival of interest in District conferences of purchasing men. If memory is reliable, this idea was born many years ago—back in the twenties—in District No. 6, which hasn't yet revived the practice since the wartime interruption, but already has plans under way to do so.

When the first regional conference was proposed, considerable opposition was voiced from national headquarters (then under a different administration) on the ground that such meetings would compete with and detract from the national convention. As a matter of fact, it has worked out quite to the opposite result, stimulating a group consciousness and solidarity beyond the scope of the individual Association, demonstrating the value of such broader contacts, and filling in the time gap that necessarily intervenes between the annual conventions of the National.

The current series of postwar conferences has been notable for the excellence of program, the calibre of speakers, the enthusiastic audience participation, and the constructive policies evolved. The national officers are 100% in support of the plan, and a wealth of talent has been disclosed and developed that will doubtless be used to excellent advantage when the time for the national convention rolls around.

WE ARE always interested in noting what the other fellow thinks about purchasing agents, their habits, and their personal characteristics. One such reference appears as an aside comment in a recent Reader's Digest article entitled "A Woman Needs Three Husbands" in which the qualifications of the Business Husband, Handy Husband and Lover Husband are detailed. The Business Husband in this analysis is not a purchasing agent, but deals with buyers. For, says R. D., he should be free to "concentrate on office efficiency, production, distribution, sales, the entertainment of buyers, late-in-theevening conferences, out-of-town conventions, and the showy wives of purchasing agents." Beyond sup-plying a few italics in the above quotation, F.O.B. has no comment.



In every field of industry — be it construction, oil, mining,

road building or in the timberlands, there is always some product that is preferred because of its dependability... and in Wire Rope, "HERCULES" (Red Strand) has continued to enjoy an "outstanding" reputation for over 68 years.

Naturally, there are many reasons for this recognition. First of all, is our own high standards established for the selection and testing of the materials that go into its making.

This unwavering policy.

This unwavering policy, backed by unexcelled manufacturing facilities, research and experience, has resulted in universal acceptance of the (Red Strand) as a dependable guide to follow when buying Wire Rope.

Being made in a wide range of constructions — Round Strand and Flattened Strand . . . Preformed and Non-Preformed . . . there is a style exactly suited to meet any heavy duty demand.

Call on our engineering department any time for specific recommendations they'll welcome your inquiries.



# Now Available in standard types

# COOPER Certified Stainless Steel Valves and Fittings

made of any wanted alloy to resist

Corrosion ... Heat ... Abrasion ...

Every Stainless Steel valve or fitting made by COOPER is backed by 25 Years of Stainless Steel "know-how". Each is "Certified" by COOPER to do its job and do it well . . . for in producing "Certified" valves COOPER registers the analysis of each heat and stamps each casting with its heat number for positive identification. When desired, a certificate of the analysis and heat number is issued the user. This certificate applies to all Stainless Steel parts which come in contact with the fluid being handled. Each valve or fitting rigidly meets the specifications of the job.

COOPER Valves and Fittings are sold through the largest Stainless Steel distributors in the country. Check with your local distributor.

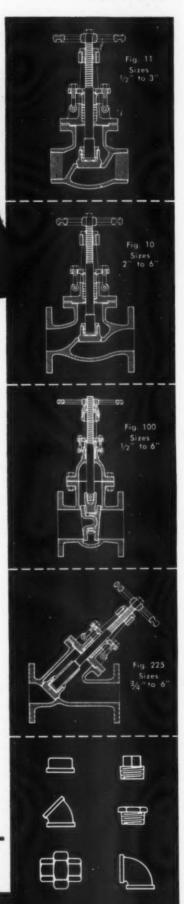


## The COOPER ALLOY FOUNDRY CO.

HILLSIDE, N. J.

Specialists in Corrosion Resisting Stainless Steel
... For a Quarter of a Century ...





# McGILL follower BEARINGS

A full type needle roller bearing, with rounded end rollers. These give maximum surface for taking the severe shock of intermittent loads. Unusually sturdy outer race, with no small retaining washers or delicate parts. Possibility of becoming disassembled during operation is eliminated regardless of the shape of the cam. Bulletin CF-40-A gives specifications and load capacity. Write for copy.

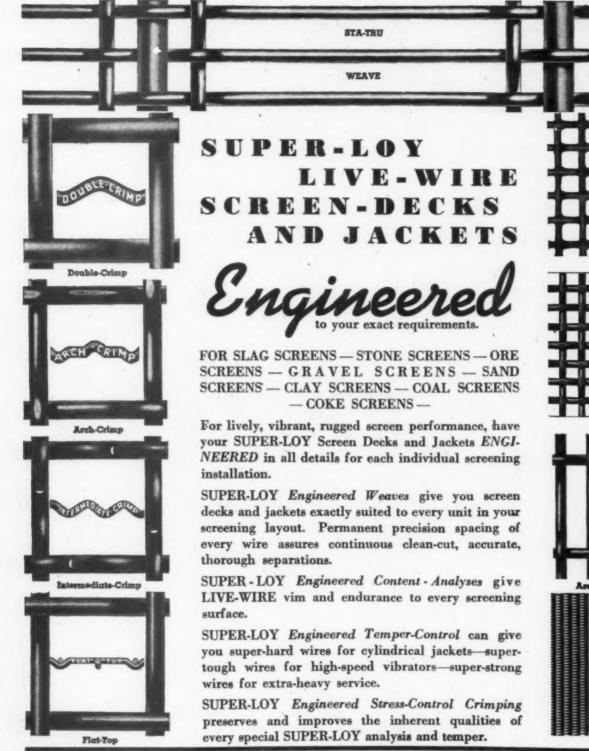
Cam follower MINING

MGILL

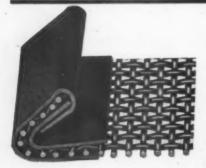
MANUFACTURING COMPANY, INC.

Manufacturers of Ball and Roller Bearings

VALPARAISO, INDIANA



## The LUDLOW-SAYLOR WIRE COMPANY Newstead Avenue & Wabash Railroad ST. LOUIS 10, MO



Order Ludlow-Saylor Engineered Hook-Strips for tensioning vibrator-screen decks. They transmit to every tensioned wire an equal share of uniform vibration, evenly distributed throughout the entire screen area. They make screen decks last longer—step-up screen capacities—are easier to handle—quicker to install—need fewer adjustments and renewals.



Dutch Weave



### Metal Worker in 1872

The town blacksmith was the leading metal-worker in 1872, the year GTD "Greenfield" was born. And a mighty man he had to be in order to worry a thread onto a piece of metal with that primitive threading tool—a "jamb plate" \*. Working to tolerances of perhaps a sixty-fourth of an inch, the metal-worker of 1872 would be amazed

at the accuracy of modern "Greenfield" threading tools, measured in ten thousandths of an inch.

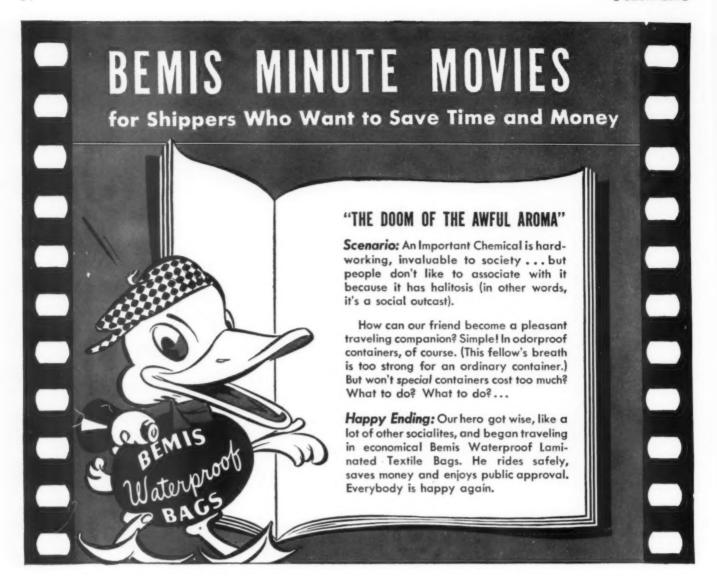
The history of the Greenfield Tap and Die Corporation during the past 75 years has been the history of the development of ever finer and more accurate threading tools to serve industry.



\*Forerunner of modern threading tools, the "jamb plate" was a crude vise-like tool that clamped onto the piece of metal to be threaded. It was then laboriously twisted back and forth until a thread was actually "jammed" onto the metal. It was slow, hard work and the results were haphazard.

TAP and DIE CORPORATION
Greenfield · Massachusetts

The GEOMETRIC TOOL COMPANY
New Haven, Connecticut In Its Fifty-Fourth Year
ADIVISION OF GREENFIELD TAP and DIE CORPORATIO



**PRE-TESTS STOP PROTESTS!** Bemis Water-proof Laminated Textile Bags head off complaints because they are tested *before* they are put to work. Their strength and tear-resistant, puncture-resistant qualities are pre-proved for you. And their economy is attested by thousands of users.

This Bemis Waterproof Bag is light in weight, yet is the strongest shipping bag made. It protects both ways — what's inside the bag and what's outside, too. It assures low-cost protection against escape or absorption of odors, change in moisture content, contamination, sifting, breakage, and many other common shipping complaints. It eliminates labeling costs and saves packaging and shipping costs.

A Bemis Waterproof Bag can also be made lintproof, acid-, oil-, or grease-resistant. Empty or filled, it saves storage space.

If the *exact* Waterproof Bag you need doesn't exist, the Bemis Shipping Research Laboratory will design it for you.

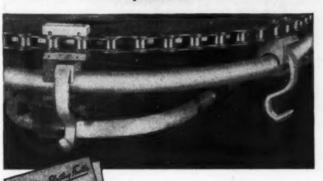
Write today for a copy of "Seven Facts About Low-Cost Protective Packaging".





The Udylite Semiautomatic Plating Machine with one operator who merely loads and unloads the racks will turn out as much work in a given time as a battery of still tanks with a number of operators. And it doesn't require a skilled operator either.

Specifically here's what this machine will contribute to your plating operation.



The new bulletin just off the press will give you complete details. Write for your copy today.

- Provides greater production.
- Greater process control and therefore greater product uniformity.
- Greater flexibility to meet emergencies.
- Significant economies in man-hours, floor space, time and metal consumption.

THE GASTION

1651 EAST GRAND BOULEVARD

DETROIT 11, MICHIGAN

REPRESENTATIVES IN ALL PRINCIPAL CITIES

BAY

STATE



Bay State, with a new streamlined system of processing orders, 80% more manufacturing space, additional equipment, and new modern facilities for stock, now offers you improved delivery. We have added to our personnel, and appointed several new distributors strategically located to serve you, while our regular distributors have greatly increased their stock of wheels.

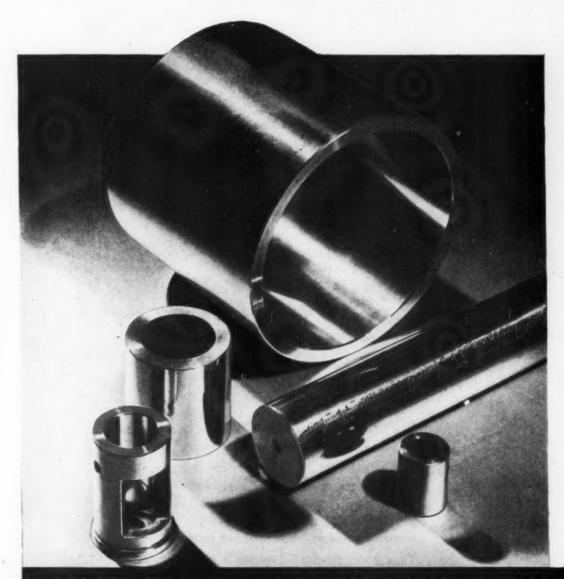
Large enough now to meet quickly all your abrasive needs, we are still small enough to give your orders individual attention.

These improved facilities and our usual high quality product warrant a trial.

Branch Offices and Warehouses - Chicago - Detroit. Distributors - All principal cities.

Top Performance Consistently Duplicated BAY STATE ABRASIVE PRODUCTS CO. . WESTBORO, MASSACHUSETTS, U.S.A.

he Bunting Stock-Carrying Distributor has Bunting
Bars and Bearings in adequate quantity and variety, in
your community. Backed by Bunting Branch and
Factory stocks, he has the Bronze you want—now. The
Bunting Brass & Bronze Company, Toledo 9, Ohio.
Branches in principal cities.



BRONZE BEARINGS & BUSHINGS & PRECISION BRONZE BARS

Bunding)



You don't have to ask if there is a SUPERSTRONG box or crate for your product—you just know there is!

SUPERSTRONGS, you see, do not come in a few standard shapes and sizes. Our engineering department makes a study of the requirements of your product—and then designs a shipping container custom-built to those requirements.

Your good product deserves a good container. SUPERSTRONGS—"Bound with Steel"—are just the thing.

RATHBORNE, HAIR AND RIDGWAY COMPANY
1440 WEST 21st PLACE • CHICAGO 8, ILLINOIS



1870—The first electric motor was discovered by accident. Its invention revolutionized the lives of millions. Graphically, here's how its development changed you from a walker to a rider.



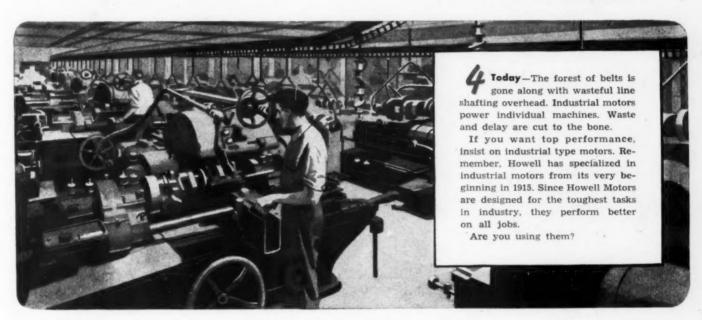
21897—The first automobiles were built by "hand." They were a luxury for the few. Mass production methods with batteries of electrically driven machines to cut manufacturing costs were still to come.



3 1925—Mass production had arrived.
Machines driven by electric motors
were more extensively used. Prices of cars
came down. Walkers became riders. But
shops looked like a forest of belts.



## "Presto! and out went the forest of belts"





Howell Protected Type Motors available in sizes 5 h.p. and smaller. Also other Howell industrial type motors available up to 150 h.p.

## HOWELL MOTORS

HOWELL ELECTRIC MOTORS CO., HOWELL, MICH.
Manufacturers of Quality Industrial Type Motors Since 1915



# One Source for Everything in Process Piping Equipment

What a soap plant can do can be done in any process industry to step up piping efficiency the easy way.

By looking to Crane for all piping materials, you get the maximum benefits of standardization practices. Specifying and buying are simplified. Every piping procedure is easier—from design to erection to maintenance work.

With top quality assured by Crane Co.'s 90year leadership in the field, standardizing on Crane equipment gives you this 3-way advantage:

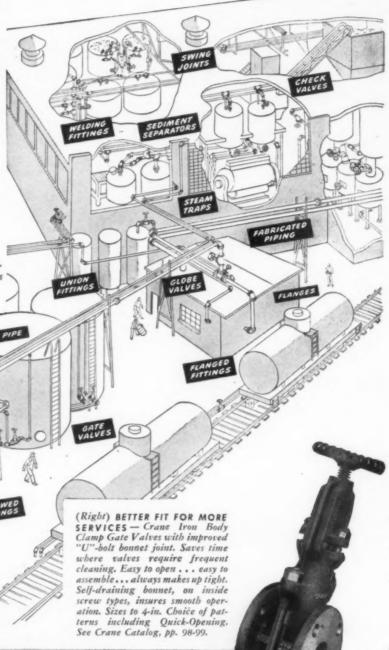
ONE SOURCE OF SUPPLY offering the world's most complete selection of valves, fittings, pipe, accessories, and fabricated piping—in brass, iron, and steel—for all power, process, and general service applications.

ONE RESPONSIBILITY for piping materials—helping you get the best installation, and avoiding needless delays on jobs.

OUTSTANDING QUALITY in every item—assuring uniform durability and dependability throughout piping systems.

CRANE CO., 836 S. Michigan Ave., Chicago 5, Ill. Branches and Wholesalers Serving All Industrial Areas

SOURCE OF SUPPLY



EVERYTHING FROM . . .

VALVES • FITTINGS
PIPE • PLUMBING
HEATING • PUMPS

CRANE

FOR EVERY PIPING SYSTEM



A.4 AG Littelfuse Series 411 Fuses. 10 to 40-ampere sizes for use on 32 volts or less. Glass enclosed.

B<sub>e</sub> 4 AG "Slo-Blo" Littelfuse Series 413 Fuses.
1 to 3-ampere sizes for use on 250 volts or less, and a 5-ampere size for use on 32 volts or less. Glass enclosed.

C. 4 AB Littelfuse Series 414 Fuses. 1 to 3-ampere sizes for use on 250 volts or less, 5 to 15-ampere sizes for use on 115 volts or less, and 20 to 40-ampere sizes for use on 32 volts or less. Bakelite enclosed, shatter-proof construction.

D. Finger Operated Fuse Extractor Post. A quick, safe and simple way of mounting and changing 4AG fuses. For front-panel mounting.

E. Pressurized, Finger Operated Fuse Extractor Post. Similar to above except for use at high altitudes in pressurized aircraft cabins, etc.

F. Same as "D," above, except for back-of-panel mounting.

For other Fuses, Mountings and Accessories send for Catalog No. 9

Spring-and-Link element (5-ampere and lower) provides special protection for the delicate fuse element, offsets vibration. Short fusing section is soldered to beryllium copper spring as shown in illustration "B" above.

Mechanically depolarized elements, with 90 degree twist, are unresponsive to vibration from any direction and are used in larger amperages, as shown in illustration "A" above. Special "gooseneck" formation at one end of fuse element prevents crystallization and cracking at the fusion point.

Complete assortment of ratings for small motors, relays and all industrial applications in which medium or high time lag protection coupled with anti-vibration and shock resistance qualities are major factors. In all such applications they will give you longer lasting, more dependable, more economical protection.

For complete information and prices on these and other Littelfuse quality products, send for Catalog No. 9 . . . just off the press.

## LITTELFUSE 4795 NORTH RAVENSWOOD AVE.



9ncorporated
CHICAGO 40, U. S. A.

MITE-T-LITE . SWITCH-LITE . IGNITION-FRITZ . MEON INDICATORS . SWITCHES . CIRCUIT BREAKERS . FUSES, MOUNTINGS AND ACCESSORIES

#### PERMANENT MAGNETS MAY DO IT BETTER!



# Now! we're ready to Demonstrate HYFLUX\*

#### Magnetic Recording Tape with full fidelity performance

HYFLUX magnetic recording tape is a new "packaged energy" product of The Indiana Steel Products Company offering for the first time full, rich, high fidelity performance at moderate operational speeds. HYFLUX, the result of over a third of a century of experience in permanent magnet production augmented by independent research of the Battelle Memorial Research Institute, is a paper tape coated with fine high-energy magnetic particles with characteristics comparable to the well-known grades of Alnico. The simplicity of its design, its high fidelity performance, and the low cost materials used in fabrication provide HYFLUX tape with exceptional advantages for modern commercial recording.

Although The Indiana Steel Products Company will only produce HYFLUX Tape itself, the importance of developing a soundly engineered recorder for HYFLUX magnetic tape was recognized. The combined work of The Indiana Steel Products Company and the Physics Research Division of the Midwest Research Institute resulted in a single basic mechanism which incorporates outstanding new refinements in recording magnetics, electronics, mechanics, and acoustics. These engineering findings will be available to all recording machine manufacturers who are HYFLUX licensees. Write today for additional information on the technical application of HYFLUX recording tape.

HYFLUX Magnetic Recording Tape Brings These New Advantages to the Field of Sound Recording

- High Fidelity Performance
- Low Operating Cost

" Reg. U. S. Pat. Off.

- Compact . . . ½ hour recording on a single 8 MM reel.
- Flexible and Durable in Use
- Permits Precision Editing

#### \* THE INDIANA STEEL PRODUCTS COMPANY

PRODUCERS OF "PACKAGED ENERGY"

6 NORTH MICHIGAN AVENUE + CHICAGO 2, ILL.



SPECIALISTS IN PERMANENT MAGNETS SINCE 1910

VALPARAISO, INDIANA

STAMFORD, CONN. (CINAUDAGRAPH DIV.)

© 1946 The Indiana Steel Products Co.

# Fill special gasket needs WITH STANDARDIZED MATERIALS

Even hard-to-meet gasket requirements can in many cases be filled promptly and economically by specifying Armstrong's standardized sealing materials. Five basic types, available in 71 different formulations, offer a planned range of properties that can satisfy almost any gasketing application. By specifying these performance-proved materials, you can avoid expensive, toorder compounding and costly production delays.

Get unbiased recommendations based on our 34 years of gasketing research and experience from an Armstrong representative. Or if you prefer, send full details of your specific application to the Armstrong Cork Company, Gaskets and Packings Department, 7201 Arch Street, Lancaster, Pennsylvania.

#### ARMSTRONG OFFERS 71 **STANDARDIZED** MATERIALS

Armstrong's Synthetic Rubbers 19 precisely compounded materials. Available molded, die-cut, in sheets or tapes, and in extruded rings.



**Armstrong's Cork Compositions** 

28 different materials affording a broad choice of densities, degrees of compressibility, high frictional value, and other properties.



Armstrong's Fiber Sheet Packings

3 types. No. 841, tough, resilient Fibrated Leather. No. 143, non-corrosive, No. 1242, low-cost, generalpurpose fiber sheet packing.



Armstrong's Cork-and-Synthetic Rubbers

19 compositions, offering varying degrees of compressibility combined with properties of the synthetic rubbers.

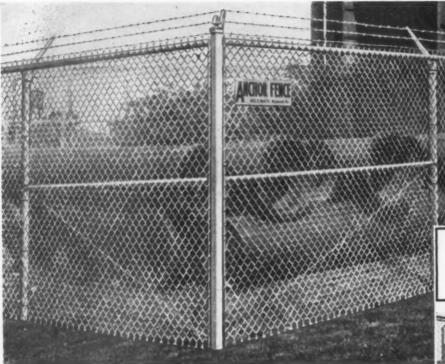


Armstrong's Rag Felt Papers

2 types. Dry or Impregnated. Can be die-cut to specifications. Also available in sheets, rolls, strips, tapes, or laminations.



ARMSTRONG'S GASKETS . PACKINGS . SEALS



# How to PROTECT OUTDOOR STORAGE OF MATERIALS, SUPPLIES!

You can make full use of your outdoor space . . . for storing materials and supplies . . . when your property is fully protected by an Anchor Chain Link Fence. That means you'll be able to free valuable factory floor space for production without building at this time. What's more, an Anchor Fence will also control employees and motor traffic in and out of your plant—keep out trespassers, agitators and other trouble-makers.

Write today for your free copy of our Book No. 110 . . . showing types of fence, construction details, photographs of prominent industrial installations. Or let us have one of our experienced



engineers call and give you the benefit of his knowledge in solving protection problems. Address: ANCHOR POST FENCE DIVISION, Anchor Post Products, Inc., 6615 Eastern Ave., Baltimore 24, Maryland.

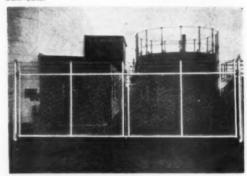


Nation-wide Sales and Erecting Service





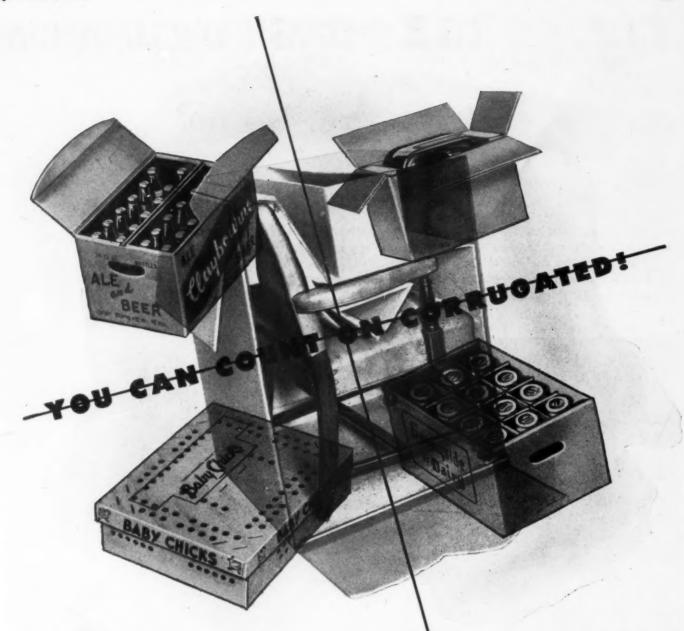
**DEEP-DRIVEN ANCHORS** are clamped to the posts at right angles to the fence line—form a 3-point "tree-root" anchorage deep in the sub-soil.



**SQUARE FRAME GATES** of square steel tubing. Anchor gates are butt-welded at corners to prevent sagging and warping.



**SQUARE TERMINAL POSTS** are stronger than round posts of comparable size. Crossbracing to adjoining line posts adds extra rigidity.



THERE'S a reason, and a good one, why corrugated containers carry so much of the nation's commerce. It's the perfect protection they afford products, whether large or small, heavy or light, that creates such a demand. Light in weight, they are sturdy enough to stand the stress and strain of shipping.

For furniture or fruit, tobacco or toys, the corrugated container is durable and dependable. Old Dominion offers the advantage of engineering experience in the corrugated field . . . its own printing plant . . . and a specially devised system of identity markings. Consult us on your corrugated problems.



Write today for completely illustrated Corrugated Carton Folder, to Old Dominion Box Company, Inc., Dept. 45, Charlotte, North Carolina.

)LD DOMINION

PLANTS LOCATED THROUGHOUT THE SOUTH NEW YORK REPRESENTATIVE 228 EAST 45th ST., NEW YORK 17, N. Y. Phone MUrray Hill 2-6492 Box Company Inc.

CHARLOTTE · N. CAROLINA

PRECISION BUILT PAPER BOXES AND PACKAGING MATERIAL

SPECIAL PURPOSE DRILLS

## CLE+FORGE SPECIAL PURPOSE DRILLS

E Engineered

FOR THE JOB

Proper selection of drills will enable you to produce better work faster and at lower cost. Special jobs call for Special Purpose Drills which have been developed to meet certain specific requirements. One example is found in the photo below showing a set-up of 148 Burner Drills. Their short flutes and sturdy construction make them ideally suited to overcome the difficulties of drilling castings of this kind. Send for your copy of new, illustrated booklet describing these and other Special Purpose Drills.



The CLEVELLUS

TWIST DRILL COMPANY 1342 RAST 49° STREET CLEVELAND 14

THOMAS ST., NEW YORK 7 · \* NORTH JEFFERSON ST., CHICAGO 4 · 65 HOWARD ST., SAN FRANCISCO 5

297 EAST GRAND BLVD., DETROIT 2 - 1921 NORTH FIELD ST., DALLAS 1

E. R. RARRIS. LTD., LONDON W. E. ENGLAND

"CLEVELAND"
DISTRIBUTORS EVERYWHERE
AKE READY TO SERVE YOU

# Purchasing Previews Washington Report for Purchasing Agents

**JANUARY 1, 1947** 

COMPETITION WILL SHAKE OFF GOVERNMENT INFLUENCE . . . . . Economic drifting which has characterized the trend of commerce during the past six months is due to continue until there is a marked change in the business outlook.

The uncertainty is due to the changes in the Government-industry picture. During the war years, all phases of business were under the control of Government. of the controls were of an indirect nature, but whether by virtue of being the only consumer of manufacturer's product or by its influence over ultimate consumer buying, the Government was nevertheless the paramount influence.

Nothing to date has replaced this influence. controls have not totally disappeared, but they have not been strong enough to give direction to business. The role of the Government is now more in the nature of a weak umpire than a strong manager.

There has been much puzzlement over the indecision which has existed during the past 12 months. The period has been an overall high profit period, with the outstanding exceptions of several important industries. The past year was marked by progress through sharp spurts, rather than a long steady improvement in production and supply.

These tendencies have discouraged industry from assuming

strong leadership over the economic future.

Still, there has been preparation for a period of sharp . competition ahead. The acquisition of new tools and equipment has proceeded at an unprecedented peacetime pace. Once competition is fully underway, the war-time cycle of Government controls will be fully at an end.

BUYERS WATCH PRICE BREAKS . . . .

Buyers are keeping a close tab on basic agricultural commodities, on the premise that these will provide a close

index of price trends in other markets.
It is significant that with the huge crops which were harvested last year, and the large plantings made during the late fall, there has been no marked break in prices to a degree where farmers would tend to cut the size of crops, or shift their plantings from one crop to another.

Cotton prices took a drop, which though spectacular from the viewpoint of the spot trader, was not so spectacular when viewed over a long term. Corn prices turned soft, but firmed up when Government buying bid up the price.

In both instances, it is apparent that while the Government has publicized efforts to keep prices down, it has been a matter of public policy in the field of agricultural prices to keep prices up.

The outlook is for corrective adjustments in agricultural prices. Even with potato crops far greater than either demand or requirements, the market prices were held firm by Government maneuver-and the Government support. price policy will lead to similar potato surpluses this

year.

Under these conditions, there cannot be any sharp drop in the high income level of the farm population in this country. In fact, the rural purchaser is looked upon as a reservoir of consumer purchasing power that will take the sag out of the consumer goods market.

CONGRESS EYED AS LABOR ARBITER . . . . First order of Congressional business will be to bring order to the house of labor. There is the general realization that the "quickie" laws which were enacted in the last several years to take care of particular evils as they arose, cannot be expected to serve when a new problem develops. A more comprehensive adjustment must be made.

The National Labor Relations Act will be overhauled. Some determination will be made concerning the status of supervisory personnel. It is no longer a question of whether action will be taken; it is now a question of what

action will be taken.

This does not mean that the legislation will be directed against unions, but that there will be curbs against union leadership; that unions will have to assume responsibility

matching the growth of their power.

Simultaneously, the economic balance wheel that will introduce greater management risks will tend to stabilize the labor force. The peak of employment has been reached, and for the current period has been passed. Unemployment during the period ahead will increase-not at an alarming rate, but appreciably. This will tend to give employers greater bargaining power, and with the combination of corrective and definitive legislation, a period of relative labor-management stability will result.

<u>VETERAN READJUSTMENT UNDER CLOSE SCRUTINY</u> . . . . . . . . . . Veterans Administration is watching closely developments as they affect veterans employment during the next several months. The first heavy wave of release of men from the armed services came about 12 months ago.

The significance of the one-year period lies in the 52-week compensation which was provided to give veterans

time to adjust themselves.

This period of adjustment-plus the schooling allowances -plus the extensive training allowances which the Government provides—have kept the veterans from showing up

on unemployment rolls.

Veterans Administration officials feel that it is highly important that large numbers of veterans do not become unemployed. The natural consequence of a large body of unemployed veterans is held to be the development of strong veteran pressure groups that will seek to benefit themselves as a group, rather than to participate in general benefits that accrue to the nation as a whole.

SURPLUS LOAD STILL HEAVY . .

War Assets Administration is still saddled with quantities of surplus property far greater than is generally realized.

Roughly one-fifth of the total surpluses has been liquidated, representing the most merchandisable of the

surpluses.

These sales have been made during a period of general scarcity, when buyers have been less selective. Now with bulk of surplus remaining to be sold, the market is far from favorable, with the only appreciable advantage to the Government being the ability to cut prices without reference to cost of production.

Indiscriminate reduction in price of surplus will be vigorously contested by industry. Outcome will be that the problem of surplus disposal will remain for a long time to

come.



Photo of an actual shipment using Acme Unit-Load Principle.

#### with ACME Unit-Load Method

Damage in transit is nil when Acme Unit-Load Band combined with Acme Unit-Load Methods are used for carload shipments.

Cash savings in dunnage and labor accrue directly in most instances when modern Acme methods of car bracing are adopted.

Acme Unit-Load Methods take the hazards of everyday shipping right in stride . . . protect products all the way to the customer's door.

Acme Packing and Shipping Specialists will gladly demonstrate a Unit-Load Method tailored for safer, more efficient shipping of *your* products. Inquire now.

# TRANSIT HAZARDS ELIMINATED ON FOOD LOCKER SHIPMENTS

In carload shipping of metal food-storage lockers without the usual protection of wood or paperboard containers Acme Unit-Load Method efficiently turned the trick. Lockers arrived in excellent condition, unmarred and undented. Moreover, a cash saving of \$340 per car was realized.

NEW YORK 7

ATLANTA

CHICAGO 8

LOS ANGELES 11

ACME STEEL COMPANY

ACME STEEL CO. CHICAGO



# BALANCED CONSTRUCTION and DESIGN

FOLDING CARTONS

KRAFT GROCERY BAGS AND SACKS

KRAFT PAPER AND SPECIALTIES

Standard of the Packaging Industry

GAYLORD CONTAINER CORPORATION, General Offices: SAINT LOUIS

New York • Chicago • San Francisco • Atlanta • New Orleans • Jersey City • Seattle • Indianapolis • Houston Los Angeles • Oakland • Minneapolis • Detroit • Jacksonville • Columbus • Fort Worth • Tampa • Cincinnati Dallas • Des Moines • Oklahoma City • Greenville • Portland • St. Louis • San Antonio • Memphis • Kansas City Bogalusa • Milwaukee • Chattanooga • Weslaco • New Haven • Appleton • Hickory • Greensboro • Sumter

Stem Nut	9
Toothed Lock Washer	0
Name Plate	0
	-
Sure-Grip	
Handwheel	
Stuffing Nut .	
CI -1	
Gland	- 1
Molded Packing	-8
Union Bonnet Ring	
The state of the s	
1	(IR
Bonnet	
	0
	A
Stem	
	道
Disc Holder	
Composition Disc	
Disc Retaining Nut	
4	
	OR THE REAL PROPERTY.

Body

# TO MAKE A GOOD VALVE



Walworth has redesigned and improved its No. 95 Quality Bronze Globe Valve.

150 pounds working steam pressure at 500F 300 pounds cold water, oil, or gas.

Can be repacked under pressure when fully opened.

The Walworth No. 95 Bronze Globe Valve has always been tops with piping men because they liked these features: Renewable composition disc; lock-on, slip-off disc holder; union bonnet construction; deep stuffing box; tough bronze body made of Composition M (ASTM B61).

Now Walworth has added these improvements: (1) New cylindrical disc holder that accurately guides the disc to the seat, regardless of the position in which you install the valve. (2) Newly designed, air-cooled, sure-grip handwheel that you can grab and turn, even when wearing greasy work gloves. It has a tapered square hole sized to gage to fit snugly on the finished square of the stem. (3) Toothed lock-washer to prevent the stem nut from becoming loose. (4) All parts have been redesigned to give maximum service and strength.

Walworth Quality Bronze Valves are available in Globe (No. 95), Angle (No. 96), or Check (No. 97) types and in sizes from 1/4 to 3 inches (check valves 1/4 to 2 inches). Ask your Walworth distributor to show you the improved Walworth No. 95 Bronze Valve, or write for further details.

ALWORTH

60 EAST 42nd ST., NEW YORK 17, N. Y.

UTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD Ful-Vue
Safety Goggles
for Good Looking
Eye Protection

Workers like A-O Ful-Vue
Safety Goggles for their comfort
and good appearance. Shaped to
conform to the orbit of the eye,
lenses are brought closer to the face,
leaving no unprotected area around the
bridge of the nose. Made in three eye and three
bridge sizes, with 6-curve Super Armorplate Clear
or Calobar lenses—with or without side shields.

The nearest A-O Safety
Representative can
supply you.

American Optical

Safety Division

SOUTHBRIDGE, MASSACHUSETTS. OFFICES IN PRINCIPAL CITIES

# Wer Makes the Difference

Betwee





can see where you're going with Van Dorn PORTO-SHEARS. Easy to follow straight lines, irregular patterns, curves down to 3/4" radius, without fear of rejects.

Fast, Powerful Shearing Action! Powerful Van Dorn Electric PORTO-SHEARS make cleaner, smoother, more accurate cuts. Finish jobs much faster than slow hand-snipping, with less muscular strain.

Cuts Many Materials! Van Dorn 16-Gage PORTO-SHEARS cut up to rated capacity in steel or galvanized iron . . . about one gage thinner in Monel or stainless . . . 50% above rating in copper, aluminum, lead and other non-ferrous metals. Can be adapted to cut thin sections of laminated wood or sheet plastics, too.

Ask Your Nearby Van Dorn Distributor for details on PORTO-SHEARS and many other Van Dorn Portable Electric Tools to speed up production, maintenance, repair and construction. For your free copy of our catalog, write to: The Van Dorn Electric Tool Co., 764 Joppa Road, Towson 4, Md. \*Trade Mark Reg. U. S. Pat. Offs

FOR POWER SPECIFY

**Cutting Operation Always Visible!** You





### Steel...in 150-ton prescriptions!

These great coiled ribbons of steel — gleaming bright after their trip through the Armco mills — might be the beginning of one or more of your company's products for home, farm or industry.

Here is steel that started its career as a *special* prescription. You told us just what you needed to give beauty of finish, strength, serviceability to your product, and we prescribed the mill processing to make the kind of steel that does the job best.

At the Armco mills every order travels on an individual "ticket." The routing order may call for a trifle less annealing, a bit more temper rolling, a different sequence of operations . . . any one of a hundred or more different routings available.

Individual treatment of orders is only one of many Armco methods that help your company provide more attractive, longer-lasting sheet steel products. Almost 50 years of constant research have made Armco the leader in the field of *special-quality* sheet steels. The American Rolling Mill Company, 121 Curtis Street, Middletown, Ohio. Export: The Armco International Corporation.



### THE AMERICAN ROLLING MILL COMPANY

STAINLESS STEEL SHEETS, STRIP, BARS AND WIRE • GALVANIZED PAINTGRIP STEEL • ZINCGRIP

STEEL • GALVANIZED ARMCO INGOT IRON • ENAMELING IRON • ALUMINIZED STEEL •

ASBESTOS-BONDED STEEL • ELECTRICAL STEEL • DRAINAGE PRODUCTS • STEELOX BUILDINGS

These Armco special-purpose steel products are in short supply now, but we are bending every effort to produce as much as possible for your needs.



# ANCHOR FLANGE



This flange adds extra strength to the steel arch's sidewall. Anchored between insole and outsole, it also serves to resist shifting and tilting when the is struck at an angle. Nature wisely provides the slow-moving turtle with a life-protecting shell. And just as wisely, the makers of Hy-Test Safety Shoes provide a shell of steel in Hy-Test Shoes to give protection where needed. This Anchor-Flange Steel Box Toe defies falling objects and other toe-injuring hazards. It is scientifically arched to take the blows... specially anchored to hold firm without shifting or tilting. This sturdy shell of

steel is so smoothly patterned into Hy-Test's trim, neat lines you hardly know it's there.

Yet, like other outstanding features, it helps distinguish these shoes to make them preferred by more workers than any other safety shoe in America. Husky, pliant leathers, Slant-eze tops for ankle freedom, and quality workmanship throughout assure longer wear, extra comfort, and neat appearance in the safety shoe that gives protection where needed. Would you like to

know how Hy-Test's plan can bring these shoes to workers in your plant? Just drop us a line.

HY-TEST Safety Shoes

THE WORLD'S LARGEST SELLING SAFETY SHOE
HY-TEST DIVISION \* INTERNATIONAL SHOE COMPANY \* ST. LOUIS 3, MO.
FASTERN OFFICE \* MANCHESTER N. H.

# Let's look at the Record!

As we start on our 101st year of making valves for industry, we feel that the past record of Powell Valves throughout 100 years of meeting every industrial flow control requirement as it has arisen constitutes a definite assurance of future performance.

So, whenever you need valves—for replacements or for new installations—consult Powell. If you have any flow control problems, Powell engineers will be glad to help you solve them.

### The Wm. Powell Co., Cincinnati 22, Ohio

DISTRIBUTORS AND STOCKS IN ALL PRINCIPAL CITIES

Catalogs on request. Kindly state whether you are chiefly interested in Bronze, Iron, Cast Steel, or Corrosion-Resistant Valves.



Fig. 1803—Class 150-pound Cast Steel Gate Valve. Has flanged ends, outside ecrew rising stem, bolted flanged yoke ecrew rising stem, bolted flanged yoke and taper wedge solid disc.



Fig. 190—150-pound fron Body Bronze
Mounted "frenew" Globe Valve. Has
screwed ends, Union bonnet and regrindable, renewable wear-resisting
"Powellium" seat and disc.



Fig. 1375—200-pound Bronze Gate Valve, with screwed ends, Gate Valve, with screwed ends, inside screw rising stem, union inside screw rising wear - resisting bonnet and wear - resisting 'Powellium', nickel - bronze seat rings and disc.



Fig. 150—1 50 - po u n d Bronze Globe Valve with screwed ends, union bonnet and renewable composition disc.



Fig. 301—125-pound Iron Body Bronze Mounted Globe Valve. Has flanged ends, entside screw rising stem, bolted flanged yoke, renewable bronze seat and composition disc.

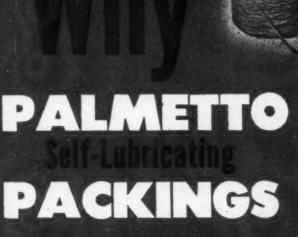


Fig. 559—125-pound fron Body Bronze Mounted Swing Check Valve with bolted flanged cap and regrindable, renewable bronze seat and disc.



Fig. 560—200-pound Bronze Regrinding Horizontal Swing Check Valve. Screwed ends, acrewed cap and regrindable, renewable bronze disc.

POWELL VALVES



Individual strand of yarn
—best obtainable Canadian white asbestos—before impregnation.

-2

The saturated yarn—after impregnation with special PALMETTO lubricant.

ast longer ...cost less

The finished product—the completely Self-Lubricating PALMETTO Braided Pack-

Here you see three stages in the exclusive process which makes PALMETTO Packings "Self-Lubricating". In this process each separate strand of asbestus or cotton is saturated with a special PALMETTO lubricant—forced into the yarn under heat and pressure! At the same time, each strand is individually graphited... the graphite flakes act as dams to trap and hold a reservoir of lubricant in the yarn. After this, the impregnated strands are braided, plaited or twisted—round or square—to the size required to form the finished self-lubricating packing. The result? A completely and permanently lubricated PALMETTO Packing with these five advantages:

- 1. Long packing life—because self-lubricating properties permit the packing to retain original officiency for long periods.
- 2. Low Irician because the packing remains soft and resilient in service.
- 3. Reduced wear on machinery parts—because there is a film of tubricant between the packing and moving rods or shafts at all times.

4. Icolor removal and installation because pudding stays

5, Lower meintenence costs because parking function without troopent adjustment or constant attention.

These five specific advantages will enable you to increase efficiency and cut packing costs. For a quick, informative look at the simple—yet complete—PALMETTO line of packings, send today for your copy of the new PALMETTO Condensed Catalog (PC=100). It makes packing selection easy!

"IT PAYS TO KNOW YOUR PALMETTO DISTRIBUTOR!" PALMETTO PACKINGS

MAIL COUPON
TODAY FOR NEW
PALMETTO CATALOG!

07-1874

GREENE, TWEED & CO.

MUNUTACIONETS OF PARMETTO POSITIOS

MORTH WALKS DA

GREENE, TWEED & CO. North Wales, Pa.

Send my cepy of the new PALMETTO Condensed Catalog.

NAME .....

TITLE .....

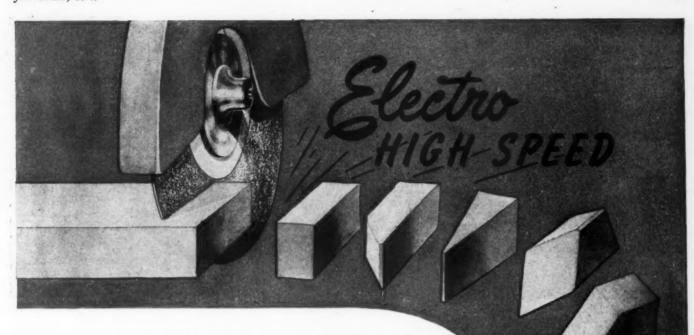
City ...... State ..... State

### INNERS become famous when they win consistently ... says Robert Gair GAIR FOLDING CARTONS are famous too, not only for constant outstanding performance on important high speed production lines, but for winning laurels consistently in the highly competitive markets of America. These distinguished "tailor-made" cartons are GAIRanteed to meet every speed and uniform precision requirement of the most modern high speed packaging machines.

### **REVELATIONS IN NEW PACKAGING MACHINES**

Our research staff has assembled important wartime developments in the packaging machine industry. This information with many of the latest photographs, dramatically features a twenty-four page brochure, now available on request. Write today for your copy of "PRECISION PACKAGING."

ROBERT GAIR COMPANY, INC., NEW YORK . TORONTO . PAPERBOARD . FOLDING CARTONS . SHIPPING CONTAINERS



# **CUT-OFF WHEELS**

SERVICE as outstanding as the efficiency, dependability and safety of all Electro High Speed Wheels now supports their quality. "Electro" service specialists are in industrial areas all the time; and we now carry stocks in Los Angeles as well as in Buffalo. Quick deliveries complete the equally quick service our field men give in determining types of wheels and operating techniques to assure your getting the most out of them. For example, Electro HIGH-

SPEED CUT-OFF WHEELS wade through everything from tool-bit stock down to brass in about as many seconds as other methods take minutes. Why not let us show you the wonderful job they do and the start-to-finish services we give you on them? You'll gain five ways.

ELECTRO REFRACTORIES & ALLOYS CORPORATION
MFRS. • REFRACTORIES • CRUCIBLES • STOPPERS • ALLOYS • GRINDING WHEELS
344 DELAWARE AVE. • BUFFALO 2, NEW YORK

West Coast Warehouse—Los Angeles

BRASS
BRONZE
CAST IRON
LOW CARBON
STEEL
HIGH SPEED
STEEL
TOOL-BIT

STOCK COLD ROLLED STEEL ALLOYED

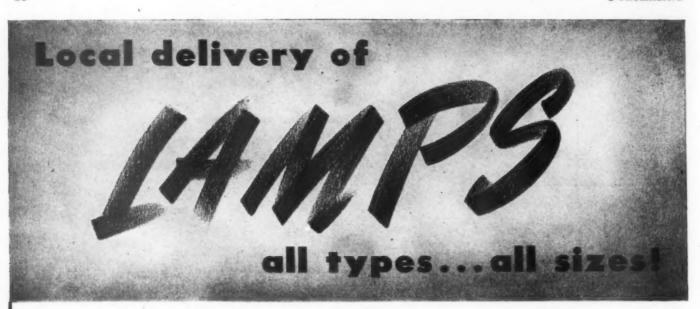
CERAMIC MATERIALS

We urge you to send right now to a FREE copy of our new grinding of catolog in industry. Technically ing photographs.

Me urge you to send right now to send t

Electro GRINDING WHEELS

STRONG · SAFE · EFFICIENT





Every commercial shape and size of G-E lamp-incandescent or fluorescent-for indoor or outdoor fixtures-are distributed by Graybar. Clear lamps. Frosted lamps. Colored lamps. Germicidal lamps. Glow lamps. Heat lamps. Flashlight lamps. Yes, and every other specialized type-including the new Circline and Slimline fluorescents.

### **Faster Delivery from Local Stocks**

Graybar maintains lamp stocks at warehouses strategically located in over 90 principal cities throughout the nation. Although all the lamps you want may not be immediately available, your surest way to obtain them as fast as possible is via Graybar.

### **Expert Advice on Lighting**

Whatever your lighting requirements, Graybar can impartially recommend the exact lighting equipment for your particular needs from the most complete selection of lamps and lighting units available from any one source.

Our nearest branch office will welcome an opportunity to demonstrate the advantages of Graybar lighting service to you. Graybar Electric Company, Graybar Building, New York 17, N. Y.

### TO USERS OF LAMPS IN BIG QUANTITIES:

Ask us about a Graybar Lamp Contract, which can relieve you of all lamp-buying details and give you attractive cash savings.

IN OVER 90 PRINCIPAL CITIES



# PURCHASING

The National Magazine of Industrial Procurement

### JANUARY, 1947

### Published monthly by

CONOVER-MAST MAGAZINES, INC.
Printed at: Orange, Conn.

Editorial and Executive Offices: 205 East 42nd Street, New York 17, N. Y.

### CONOVER-MAST PUBLICATIONS PURCHASING

AVIATION MAINTENANCE

& OPERATIONS

MILL & FACTORY

PLANT PURCHASING DIRECTORY
LIQUOR STORE & DISPENSER

### HARVEY CONOVER - B. P. MAST Publishers

Stuart F. Hein	ritz			 		Editor
Geo. E. Henry				 	Associa	te Editor
A. M. Morse,	Jr	* *		 		Manager
L. E. McMahor	١		* *	 F	roduction	Manager
F 6 4 5-1					A	D1

Richard C. Grove .......Cleveland Manager Leader Building, Cleveland

Forrest C. Pearson ......West Coast Manager 448 So. Hill St., Los Angeles, 13

### Advertising Representatives

Alex (	G. Graam										. New	York
Ray R	ichards										. New	York
Wayne	W. Gev	er									Ch	icago





### CONTENTS

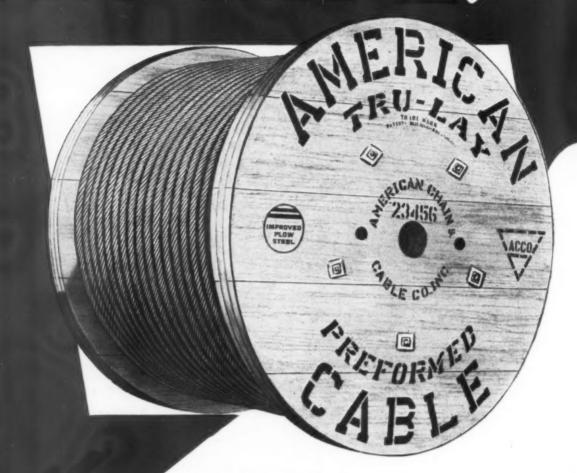
	uge
How much Duplication of Orders?	83
There Will Come A Day By E. G. Swanson	87
Standard Testing Goes Functional By E. L. Cady	88
The Case Against the Industrial Bootlegger	90
"We Quote You C.I.F." By A. L. Lomax	
The Joker in the Deck By J. W. Knowlton	
Women Purchasing Agents Aren't Sissies By M. D. Seeley	100
Pages from a Buyer's Notebook	103
Purchasing Policy	104
America's Case for Free Trade By A. N. Wecksler	
Ninth District Conference Held at Providence	
Purchasing for Production By V. de P. Goubeau	117
Can We Measure Purchasing Efficiency? 8y D. G. Clark	120
Purchasing and Sales Relationships By R. C. Kelley	123
Purchasing for a Large University By F. N. Burt	125
Propaganda for American Industry By Grey Leslie	131
The Buyer's Aesop The Fable of the Seal who Changed Jobs	135
Purchasing, Quality and Material Control By J. A. Czescik	
Progress in Palletizing	140
How to Determine When Labels Are Illegal	142
MONTHLY FEATURES Ask "Purch"	14
F. O. B	48
Purchasing Previews	67
Highlights of This Issue	
New Products—Ideas	
Among the Associations	
Office Equipment and Supplies	
Personalities in the News	402

PURCHASING is an independent journal not the official organ of any association. It is the only publication of national scope devoted exclusively to the interests and problems of the purchasing executive in industry and government. Established 1915 as "The Purchasing Agent." Consolidated with "The Executive Purchaser."

VOLUME XXII. NUMBER 1, 35c per copy. \$3.00 per year, \$5.00 for 2 years. Extra postage for Canadian and foreign subscriptions \$1.00 a year. Contents are indexed weekly and annually by the Engineering Index Service.

Copyright 1947 by Conover-Mast Magazines, Inc., in the U. S. A.

# TRU-LAY Preformed



# WIRE ROPE

TRU-LAY can't help but be good wire rope. American Cable controls every process in its manufacture, starting with the blending of the alloy steels which give highest strengths. • And TRU-LAY is preformed to give it longer life and make it safer to handle. • Constant inspections of every manufacturing operation assure unsurpassed uniformity. Add to this the strength provided by the toughest of Improved Plow Steel wires and you get a rope that will stand the gaff. Ask for TRU-LAY <u>Preformed I. P. S.</u>



AMERICAN CABLE DIVISION
AMERICAN CHAIN & CABLE

### HOW MUCH DUPLICATION OF ORDERS?

P OR many months past, manufacturers have been plagued with doubts as to the integrity of apparent demand, represented by their backlogs of orders. A year ago they frankly discounted it by 40% to 50%. They could do so then with comparative cheerfulness, since deliveries were still months away, they were assured of capacity business within the limitations of available manpower and materials, and prices could go in only one direction—up.

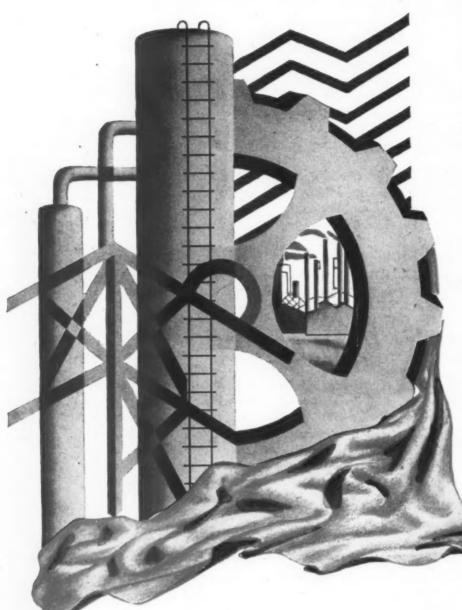
Today all of these factors have changed. The time gap is steadily shortening, a good deal of the duplication has washed out, in other lines goods have been priced out of the market, and both consumer resistance and general business analyses indicate that the price peak has been reached, perhaps passed.

All of this has a vital bearing on purchasing policies. If inventories are a problem and a hazard, commitments are even more so, and the buyer with duplicate orders outstanding places his company in double jeopardy.

Now is a time when the free and easy system of broadcasting orders and accepting the first delivery, from whatever source, must definitely be abandoned. A necessary first step is the revision of sales estimates to a realistic basis, on the conservative side. And in purchasing to meet these requirements, firm schedules and promises of delivery from reliable suppliers should be the rule. This may not be easy of accomplishment—good purchasing rarely is. But suppliers generally are in exactly the same situation and are just as anxious to put their house in order. With the assurance that contracts really mean what they say and that contract obligations will be carried out on both sides, there are many who are eager to cooperate. Sound vendor relations have never been more important to a company and to its purchasing program than in 1947.

Stuart F. Nemit

### COLUMBIA ESSENTIAL INDUSTRIAL CHEMICALS



LIQUID CHLORINE CAUSTIC SODA SODA ASH

\*SODA BRIQUETTES
(Iron Desulphurizer)

CALCIUM CHLORIDE MODIFIED SODAS

\*PITCHLOR
(Calcium Hypochlorite)

**CAUSTIC ASH** 

\*PHOSFLAKE
(Bottle Washer)

\*SILENE EF
(Hydrated Calcium Silicate)

\*CALCENE T

(Precipitated Calcium Carbonate)

SODIUM BICARBONATE

\* Trade Marks Registered U.S. Patent Office



### COLUMBIA CHEMICALS

PITTSBURGH PLATE GLASS COMPANY COLUMBIA CHEMICAL DIVISION

FIFTH AVENUE at BELLEFIELD, PITTSBURGH 13, PENNA. - Chicago - Boston - St. Louis Pittsburgh - New York - Cincinnati - Cleveland - Philadelphia - Minneapolis - Charlotte - San Francisco



A brief summary of outstanding features of timely interest and importance in this issue, to conserve the time of busy readers



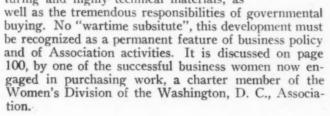
Bootlegging Replacement Parts has become an active business, often presenting a tempting proposal for the buyer. Donald Frederick's article on page 90 discusses this development, which involves both legal and ethical considerations, but is even more basically a matter of sound purchas-

ing policy and good business judgment. Before you succumb to the lure of lower prices, balance these apparent advantages with the larger issues involved in dealing with these sources of supply.

This month's Guest Editorial (page 87) is by E. G. Swanson of Moline, N.A.P.A. Vice President for District No. 3. His timely message constitutes good advice for purchasing men as we enter the New Year and make our plans for 1947. You will agree with his suggestion that it may be just as sound five years from now.

A thought provoking analysis of the basic economic situation in which we are now doing business is the article entitled "The Joker in the Deck", by James W. Knowlton, on page 95. Taking issue with the commonly accepted principle that our Economic Difficulties can be solved by increased production, he marshals facts and figures to show that our troubles may be greater in times of plenty than in times of scarcity.

Don't underestimate the significant role of Women in Purchasing today. The roster and the record of women in important purchasing positions is an impressive one, and it touches virtually every industrial classification, including heavy manufacturing and highly technical materials, as

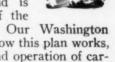


District Purchasing Conferences have been revived in a big way in various sections of the country, and they are setting a high standard of timely and constructive programs and discussion. A report of the recent meeting at Providence, under the auspices of the four New

England Associations, appears on page 112. The proceedings are just as significant for buyers in other areas. Among the important papers presented at the Providence meeting were: Vincent Goubeau's up-to-date discussion of inventories, commitments and scheduling as applied to Purchasing for Production (see page 117); Donald G. Clark's answer to the question, Can We Measure Purchasing Efficiency? (see page 120); and Robert C. Kelley's analysis of Purchasing and Sales Relationships, past and future (see page 123).

Do you fully understand the meaning of the standard terms appearing in purchase contracts? On page 93, Professor A. L. Lomax defines the term C.I.F,, with a summary of the obligations it places on the buyer and on the seller. This is particularly important if you deal in supplies from overseas sources.

America's industrial future depends to a large extent on finding Foreign Markets for our production and being permitted to operate freely in those markets. That is why our government is intensely interested in world trade policies and is actively supporting the program of the International Trade Organization. Our Washington



editor presents a graphic outline of how this plan works, how it will combat the philosophy and operation of cartels, and how industry can cooperate. Turn to page 108.

There's a fundamental change in the thinking of technical men on the subject of Standard Specifications and Testing of materials. The new emphasis is on the use or functional characteristics of the product, which is the buyer's viewpoint. See page 88 for a report on this important development.

Two complete Purchasing Procedures are reviewed in this issue, with the copies of the key forms. The story on page 136 deals with a precision manufacturing operation, and the one on page 125 describes the purchasing system of a large university.

Don't overlook these monthly departmental features compiled especially for purchasing men-Leo Parker's review of Business Law decisions on page 142, Washington Letter on page 67, the listing of New Trade Literature that is yours for the asking on page 14, and the illustrated summary of New Products and Ideas that are now available for the industrial buyer, on page 148.





Low Carbon, Cold Drawn Seamless Mechanical Tubing Regular and Pump Cylinder Finish

High Carbon, Cold Drawn Seamless Mechanical Tubing Structural Tubing—Hot Rolled, Butt Welded

Boiler Tubes—Seamless and Electric Resistance Welded

Allegheny Stainless Seamless Tubing—Type 304

Allegheny Stainless Seamless Pipe Type 304—Standard and Extra Heavy Weight Types 316 and 347 Standard Weight

> Allegheny Stainless Welded Pipe Type 304—Standard Weight

Hot Finished and Cold Drawn Alloy Steel Tubing and Aircraft Quality Tubing Available from Mill Only.

# Here's Your Tubing

### **Quick Shipment from Large Ryerson Stocks**

It's just what you ordered because we continually check the size-accuracy, concentricity and straightness of our tubular stocks.

Its surface is smooth and scale-free because close control over every manufacturing step, from selection of the highest grade billets, through piercing and drawing, to the finished tube, assures a top quality product.

You'll find that constant experimentation to improve machining qualities has paid off in good machinability within the limits of the analysis specified. In short, nothing is overlooked that will help you put this tubing to work as a finished part, quicker and with less waste.

Convenience is another advantage of Ryerson service on tubular products. Large, diversified stocks are on hand for prompt shipment in eleven completely equipped plants . . . providing next-door service most everywhere.

A Ryerson tubing specialist will work with you on all tubular requirements. Get in touch with the plant nearest you when you need tubing from stock.

JOSEPH T. RYERSON & SON, INC., Steel-Service Plants: Chicago, Milwaukee, Detroit, St. Louis, Cincinnati, Cleveland, Pittsburgh, Philadelphia, Buffalo, New York, Boston.

RYERSON STEEL

## There Will Come A Day . . . .

By E. G. Swanson

I T would be presumptuous of me to write as a prognosticator, having had neither training nor experience as an economist. However, there are certain fundamentals known to all purchasing men, which should always be kept in mind. If followed, they will keep us in a position to take advantage of the breaks, whichever

way the chips might fall.

As this article is published, we are entering a New Year. Between the time of this writing and the reading thereof, some very important things will have happened. Perhaps the Coal Strike will have been settled-I hope so. Also the aftermath of Christmas buying will probably have begun to make itself felt in some soft goods consumer prices. NOPA (a new word coined, I believe, by George Renard) might have released so much material to be used in high quality postwar products that the incipient "recession" might even be relieved or delayed. Regardless of these developments, or any others now unforeseen, such as additional strikes and curtailment of production, this is the first of the year and a good time to look around to see where we stand.

Obviously the Purchasing Agent's responsibilities and prerogatives vary with the type of individual organization. Whether or not he is in direct control of inventory, for instance, he (Continued on page 293)

E. G. ("Gil") Swanson is Purchasing Agent for The Herman Nelson Company, Moline, Illinois, and Vice President of the National Association of Purchasing Agents representing District No. 3, which includes the Chicago, Denver, Kansas City, Milwaukee, Rock River Valley, St. Louis, Tri-City, Twin City, and Twin Ports

Associations. He has a broad and diversified business background, including experience in production and sales prior to his work in purchasing. His formal education, in the Moline public schools, was interrupted by World War I, when he quit school to work for Williams.

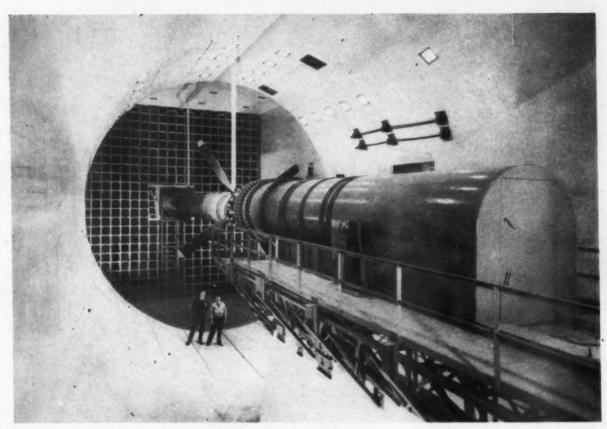
White & Company, making heavy machinery and shells for the Allies. During this period he supplemented his earlier training by completing technical courses with the International Correspondence Schools and management courses with LaSalle Extension University, thus rounding out a field of study that has been of inestimable value in his buying activities and pro-

viding the basis for continuing interest and study in business and industrial management. His first purchasing experience was with the Harrington-Seaberg Corporation, a young and growing organization where he had the opportunity and responsibility of getting down to purchasing fundamentals and applying them. This was followed

by a couple of years in sales work. Sixteen years ago he came into his present position as Purchasing Agent for The Herman Nelson Company, manufacturers of heating and ventilating equipment. He has been an active member of the Tri-State Association for

several years. Outside of his business associations, he is a member of the Bethany Baptist Church of Moline and of the Gideons, and has a keen interest in youth work in his community—the latter point being readily understandable in view of the fact that there's a lively family of three boys and two girls in the Swanson home.





Modern aircraft testing facilities simulate conditions of actual use.

### STANDARD TESTING GOES FUNCTIONAL

By E. I. Cady .

Engineering specifications are tending more and more to requirements of use

THE purchasing engineers of an aircraft company were in a huddle with the sales engineers of a ball and roller bearing manufacturer. The main problem on the board, as is usual in the aircraft industry, was how to save more weight and space. The specific problem was that of bearings to support two sets of gears.

No pair of mating gears had ever had a service life of more than seventy-five hours on one of these applications. This was all right; the device which used these gears would operate for only a few seconds at a time and the seventy-five hours would account for a great deal of flying time. But the bearings on which gears were mounted could easily last twenty thousand hours.

The other gears had limit service lives of over sixty thousand hours but the bearings which carried them gave trouble after forty thousand hours

If the bearings on the 75-hour gears could be reduced in size, weight and cost, then the space and weight and money might be available for other bearings which would last as long as the 60,000-hour gears. But just how could anyone tell how far to go in reducing the size of a bearing in order to get one which would last with safety for seventyfive hours, or to be safer still, one hundred hours, and not much more? And how could the purchase engineers be sure that for the other application they were not going overboard and getting 100,000-hour bearings in their efforts to get 60,-000-hour service?

There are machines for testing bearings. Timken, Marlin, Rockwell, Fafnir, New Departure and other manufacturers have developed them; Tinius Olsen Testing Machine Co. makes one But these machines differ in their designs and applications, and therefore in the data which they are likely to yield.

### Traditional Test Methods

An old style answer would be to go to the steels of which the bearings are made, find out what those steels will stand, and calculate the answers from there. But whereas the No. 52100 steel commonly used in bearings can show a shear fatigue curve variation of less than 5% the bearings made of that steel and made as identical as possible may show a scatter curve of failures under test of twenty to one. The comparison is that one piece of the steel will have at least 95% as much

strength as any other, but one bearing made from that steel may have only 5% of the endurance of another under breakdown test load.

The problem does not stop here. Breakdown tests are performed under extreme conditions, the idea being to break down the material under test in the least time which will yield useful data. A service test, or even an accelerated or unduly severe service test, can yield a much flatter scatter curve and prove that the "identical" bearings are far closer to being identical than the breakdown test suggested. A breakdown test shows only what the bearings would do under conditions which they never were expected to meet. The service test shows how they behave in their natural surroundings.

Service testing takes time. The more the test is accelerated, made more severe than normal service, the less becomes the complete applicability of the results. But the relationship of applicability of results to time and severity of testing varies with almost every item and

every method of testing.

Somewhere between the breakdown test figures and the service test and experience figures, add factors of safety, and arrive at their published safe load or service figures. They find out what the item ought reasonably to stand, reduce this just to make sure, and there are

their figures for publication. Much of the factor of safety is assigned because of unknown or unpredictable conditions which the item may have to meet. In the case of our purchasing engineers and sales engineers and their gears-andbearings problem, nearly all of the service conditions were known and predictable. Their problem was to calculate how much of the safety factors in bearings calculations could be eliminated and thus to arrive at the minimum sizes of bearings they dared to use-provided that changes in sizes of bearings had no effect upon the performances.

### A Lengthy Process

This was another sticker. Bearings which are working close to the reasonable limits of their capacities can tilt under load and in so doing can impose unexpected and very heavy loads, not only upon themselves but also upon shafts and gears and other members of a mechanism. Other troubles, such as undue heating up of lubricants in service, can occur.

The manufacturers and the buyers then had to agree upon the assembling of entire mechanisms with different sizes of bearings. Would 60,000-hour gears become 100,000-hour gears if no other change were made than giving them 150,000-hour bearings instead of 40,000-hour ones? A method of testing had to be worked out to find the answer. And it could not involve the complete manufacturing of dozens of mechanisms and running each for 60,000 hours—2500 twenty-four-hour days.

Naturally, each set of engineers called upon the experiences of his company with thousands of similar problems. Making of some mechanisms with bearings slightly larger than the size indicated by mathe-matical calculations, and of others with bearings slightly smaller than that calculation point, was agreed upon. These would first be run at normal loads and speeds to see if noise testing, taking the temperatures of lubricants, measuring the deflections of shafts and the vibrations of whole mechanisms, indicated that anything was wrong. If nothing bad developed up to this point, then accelerated tests, first at 100% overload and then at 200%, would be made. Mechanisms would be dismantled for laboratory testing of individual parts and for observation of causes of failure. The tests would be carried on until the problem was solved.

Time would be lost by this procedure. Moreover, there were hundreds of other complete items which engineers of both companies, and of thousands of other companies,

needed to test.

### ASTM Proposal

An accumlation of such situations has led to a brand new plan on the part of the American Society for Testing Materials (ASTM) and will undoubtedly be followed by every other society which has testing procedures and their development upon its agenda.

The new idea is to lay down more standards of procedure for testing whole mechanisms, whole assemblies, finished and assembled products.

Testing of component parts, such as metals, eye bars, expansion plates, fire brick, condenser tubes, had to be done first. Hundreds of such tests have been laid down, hundreds more will be. Any purchasing or other engineer can turn to these standards and find informative methods for specification purchasing or for comparing one product with another.

Some of these tests indicated only the strength or other basic qualities of a material or item, and the engineer had to interpret these or make his own functional tests to determine the ability of the item to do what he wanted it to do. Others were completely functional, as for example the abrasion tests for tires, the turkish towelling tests, the test for the hiding power of paint, the octane and other tests for petroleum products, the folding endurance test for paper, the mercurous nitrate test for cartridge brass.

Now there will be much more of the developing of tests for whole wall panels for prefabricated

houses, and the like.

### Further Advance in View

No one knows right now just what directions this new movement will take.

When the idea first was proposed to them, most engineers threw up their hands. The field seemed hopelessly complex and was becoming more so with every new raw material, every new method of laminating, fastening and assembling, every advance in the precision with which dimensions and formulas can be handled along the production line.

Then it was realized that a great deal of the necessary information already existed, had been developed by such engineers as the ones who tackled the bearings and gears problem. All that was needed was to draw more of this data together, form more pools of experience for the common good, obtain agreements upon procedures, fill in the gaps where nobody had experimented.

The same committees which had been functioning in various field for the ASTM could handle many of the problems of this one. The machinery for their operations was set

up and in motion.

There remained the problem of what to tackle first, and with what manpower. This is under study right now by the ASTM Administrative Committee on Simulated Service Testing. Working in parallel is the Administrative Committee on Ultimate Consumer Goods.

Tests which are informative and fair for consumer goods are harder to work out than those for engineering or industrial goods. The engineer knows what he wants, therefore it is easier to find out whether or not he is getting it. The consumer seldom knows what he wants.

Practical methods and standards for simulated service testing probably will be available to the purchasing agent much sooner than he expects them. And with them will come dramatic advances in the usefulness of the specification of test methods in purchasing contracts.



# THE CASE AGAINST THE INDUSTRIAL BOOTLEGGER

Before patronizing the illegitimate supplier of spare parts, purchasing agents should weigh the decision in terms of legality, ethics, cost and satisfactory long-range service

### • By Donald Frederick

SOONER or later everybody concerned with purchasing is faced with the bootlegger problem.

The industrial bootlegger may be easily spotted and sifted out. He has certain marks that most purchasing agents will recognize quickly; unfortunately, many purchasing people do some business with bootleggers — not any considerable amount, but enough to keep him in business (particularly in boom times) and to keep him as a nuisance in the industrial picture.

Industrial bootleggers are found in industries where reputable manufacturers have developed a product or products, the use of which is backed by high quality service to the customer and which often requires such service. The products in question may have parts which lend themselves to simple manufac-

ture and which may be frequently replaced parts; industrial stokers are a good example. The parts of an industrial stoker which are exposed to the heat of furnaces may require frequent replacement due to a number of reasons: changes of fuel, poor maintenance, improper operation, and changes in service conditions beyond the control of the manufacturer.

### **How Bootleggers Start**

In almost every case the bootlegger gets his business for two reasons which are interrelated: He operates on a small scale locally which gives him a selling point from the "patronize local industry" standpoint; his costs, and hence his selling price, are lower than that of the standard manufacturer. Where the purchaser buys strictly on price, it often gives considerable business to the bootlegger with little knowledge of the consequences that may develop.

Small manufacturers who make a good business out of making a product that is distributed locally may easily be turned into bootleggers with the assistance of purchasing departments that are more price conscious than quality conscious. The bootlegger does no advertising, he employs few if any engineers, he operates in a restricted locality so that shipping charges are low, his "factory" may be anything from an abandoned garage to a dilapidated building purchased at low cost; patterns for his castings are either simple in construction and therefore of low cost, or the patterns are furnished by the customer for a price consideration; the drawings of the legitimate manufacturer may be copied, or samples of the part are obtained and drawings made. The bootlegger often pays less than standard wages due to location, and his overhead is low because he often carries little if any sales staff and no service is rendered with parts sold.

A bootlegger may also be developed with the help of a user who feels that he is overcharged for specific parts of a standard manufacturer's assembly and who wishes to have a nearby source of supply. In such instances a small local factory may be induced to supply required items and the arrangement may work out with apparent satisfaction.

### An Unprofitable Alliance

Of course there are patent laws which must be observed, covering replacement parts that are separately described in the patent or used with patented assemblies or equipment, reserving to the manufacturer of the original equipment the right to furnish such parts. The liability for such infringement extends to the maker, seller, purchaser, and user of bootlegged parts. (See "Patent Law for Purchasers", Purchasing, October 1944).

Aside from legal and ethical considerations, however, the bootlegging of essential parts is seldom satisfactory for the user as a longrange proposition. The bootlegger, who has no investment involved in the production of parts, may shift his operations at will to something more profitable for him the moment the opportunity arises. The user is then shut off from his source of supply; while he can always return to his original supplier, he may have developed certain practices in the interim which will cost him money to drop. These practices include the making of patterns for the bootlegger and facilities for processing parts when they are purchased in the rough form.

From the purchasing department's standpoint there are a large number of disadvantages in encouraging or purchasing from other than legitimate suppliers.

The bootlegger is always looking for a good thing and therefore handles only products that have been developed and which entail no engineering costs on his part. As a source of supply he is often quite unsatisfactory since his methods of operation make him flit from one product to another, wherever the pickings are best. He almost always

shuns any attempt to hold him for product quality; product quality control is not a part of his manufacturing and therefore the customer must shoulder the cost of defective material. He offers no service with his products and difficulties with them must be overcome by the customer. The purchaser often gets substandard material in bootlegged parts because the handling of such materials, as alloys, is beyond the facilities of the bootlegger.

Where non-standard parts are purchased, the application costs are often high since poor fit may result, requiring considerable fitting labor before the assembly is restored to satisfactory working condition. In such instances the purchasing department may apparently have met its objective in obtaining the part or parts at much lower first cost, but the cost to his company may be actually higher in the long run.

### Other Remedies

There are several points that may be considered by the purchasing department before it succumbs to the temptation to encourage a bootlegger who dangles the lure of low price as an attractive idea.

Most legitimate manufacturers of special products offer contracts on parts. This is done by the manufacturer so that his volume can be estimated. Volume is the key to his price arrangement and his factory setup is greatly influenced by the unit pieces produced. Based on his

volume, the producer can offer contracts which offer price considerations when the user agrees to purchase specified parts from the regular producer.

Where the purchaser wishes, a contract with the manufacturer may permit the carrying of a minimum inventory while at the same time being guaranteed a satisfactory supply situation. The very fact that he has a parts contract with the product manufacturer will in return permit him to operate with the least inventory cost. On the other hand the manufacturer is in better position to organize his production based on what he knows must be furnished on contract.

In every case the purchaser should very closely compare the part offered by the bootlegger with that offered by the regular manufacturer. Due to imperfections in some manufacturer's price and spare parts lists, sub-assemblies appear as parts so that the price for the part in question seems to be much higher than that quoted by the bootlegger. This has sometimes been overlooked by the purchasing department and the result is unwarranted business for the bootlegger. While the manufacturer must accept the responsibility for the clearness of his parts catalogs and his prices, the purchasing department of the buyer is obligated to get the best for his money and should therefore subject the manufacturer's parts to close scrutiny before making a decision.

Purchasing departments should

Replacement parts are a vital factor in every purchasing program, to keep equipment running.



note carefully, when faced with a bootlegger proposition, whether or not it is buying a finished part or a rough part that may be expensive to finish. In almost every case it will cost the user more to finish a part than if it had been finished by the regular manufacturer. Many bootleggers offer parts only in the rough condition, such as castings or forgings. The purchasing department should be in possession of information which will permit an estimate of finished parts cost where unfinished parts are offered.

Before a buyer makes a decision to buy other than standard parts he should get the answers to certain questions about the supplier.

Will the supplier guarantee the parts as to quality of workmanship and material specifications? This question is of utmost importance because if the answer is in the negative it means that the buyer will be entirely at the mercy of the seller. Where no guarantee can be obtained the purchaser sooner or later finds himself with an inventory of unusable parts on his hands and an ultimate loss which may easily wipe out any initial savings that may have been made.

Is any service offered by the supplier? This is also an important question, although if no guarantee is given it can be said that no service will be offered. Reputable companies, through service organizations, keep products up-to-date, and keep abreast of changing conditions in the field. Design modifications are quite often made on the recommendations of the service department or as a result of observations made in the field. A supplier that is not prepared to offer such services is not in position to suggest improvements that will operate to the customer's advantage.

### Value of Stable Sources

When a buyer purchases from a reputable manufacturer he is assured of the utmost cooperation should changing conditions change his needs. When parts are purchased from a bootlegger it is often necessary to purchase in quantity to permit him to operate where he can give the price advantage. This means that the user may often find himself with an abnormal inventory of a given item. The bootlegger has no outlet for the surplus in most cases and the user will suffer a loss should such parts be discontinued for any reason. The reputable manufacturer in any instance will most likely have outlets for surplus parts and is often

in position to reduce inventory for the user. But it should be said that this will very seldom occur when purchases are made through the manufacturer since, as stated before, abnormal inventories need not be carried

One very important consideration the buyer should keep in mind is the fact that to keep a stable source of supply the regular manufacturer must be encouraged to produce his staple items; if his market dries up because of the inroads of the bootleggers, he in turn becomes a poorer source of supply. Bootleggers, as a class, do not have stable industrial lives and quite frequently go out of existence, leaving the user in a bad position. While industry can afford the demise of any number of bootleggers, the maintenance of regular producers in a healthy condition is a necessity.

The development of bootleggers also curtails product advances since in supporting a standard manufacturer the buyer contributes to the production of improved parts and assemblies. Actually, it is the user who provides the wherewithal for the development of new or improved machines for his use: In many cases there simply would be no advances in product design without the cooperation of users and manufactur-

### Manufacturers Often to Blame

Growth of industrial bootleggers has too often been encouraged, unwittingly, by the legitimate manu-facturer. Rigid price policies, poor selling, lack of standardization, and poorly arranged parts lists, along with frozen designs, all contribute to the mushrooming of parasitical suppliers.

A periodic overhauling of pricing policies is wise practice. Where large lists of sub-assemblies and parts are carried obvious discrepancies often creep in. It has been found that confused prices often result in a situation where the component parts of an assembly will cost less than the assembly itself if parts lists are not analyzed regularly so that minor changes do not mount in number to the point where the whole system is thrown out of kilter. Often it is necessary to revise the whole list after a number of changes have been made in component parts.

A very bad situation with respect to obsolete equipment often creeps in, and is open to serious criticism. A good illustration is the manufacturer who continues to supply parts for equipment that is no longer standard, simply to fill the needs of a few customers. As the volume of this kind of business declines, prices are raised so that the manufacturer can continue to make them. Soon the user turns to a bootlegger, who, once he gets his foot in the door, will also soon be supplying the user with items that are not so unprofitable to the manufacturer. The manufacturer, in such cases, has committed the first error by not discouraging the use of obsolete equipment.

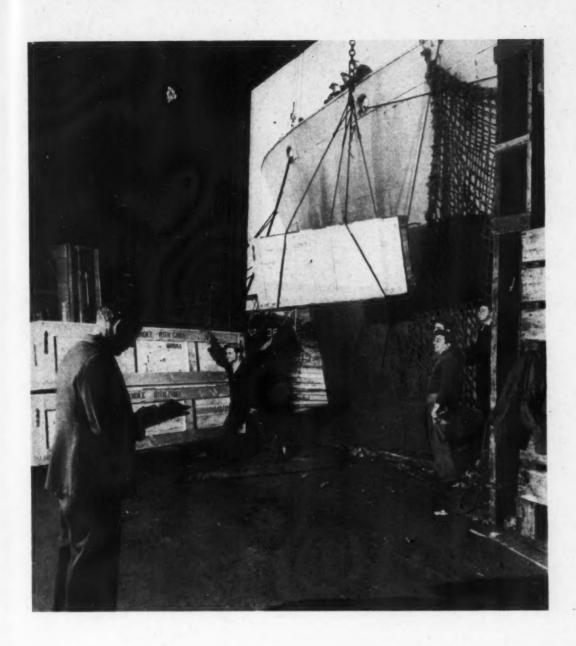
It is the function of the manufacturer to improve his product, and when a better mousetrap is indicated he should produce it. What to do about the old mousetraps is his problem. The solution does not lie in encouraging users to continue them. Sooner or later both the user and the manufacturer wake up to the fact that the continuance of obsolete machines in service is a losing proposition.

Too rigid price policies often contribute to the use of obsolete machines and equipment long after they should have been replaced by modern devices. The temptation on the part of the builder is great, with respect to keeping obsolete equipment in service, but it is definitely short-sighted. To correct this situation it is necessary for the manufacturer to have a price policy flexible enough to allow the abandonment of old equipment. It may require courage to do this. First cost of new equipment 'can be minimized by making reasonably generous allowances wherever justified.

### Combatting the Practice

The selling force has a real job to do in keeping the bootlegger out of the market. Every time a bootlegger cuts into a business there is a reason. Conditions do not change so rapidly that the sales organization cannot head them off; and an alert sales organization is one that keeps its finger on the pulse of the customers' needs. It is too late when the bootlegger is in operation; the time for corrective steps is before the condition arises which makes the bootlegger prices look attractive. The selling people should urge the manufacturer to take strong measures whenever they deem it neces-

From the manufacturer's standpoint it may be good dollar business to freeze designs. It so happens that the damage is often done before new designs are developed. This means that a live organization should be constantly looking for a (Continued on page 298)



### "WE QUOTE YOU C. I. F."

A term commonly used in foreign trade is defined by the specific obligations it imposes on the buyer and the seller

By Alfred L. Lomax • Professor of Business Administration University of Oregon

SUPPOSE some day the purchasing department receives a cable from Manila, Casablanca, or Melbourne saying "We make you firm offer c.i.f." If the executive in charge is an old hand at buying overseas he will know most of the answers and be familiar with the routines of importing; but if the receiver happens to be inexperienced in the language of the foreign-trader, he will be faced with an entirely new set of

rules and responsibilities different from those he has learned for the domestic market. The language of the foreign-trader has highly specialized meanings, as alien to the business vocabulary of the average American market manager as the foreign exporters who use them. The conventional domestic f.o.b. (and its variations) is the closest association the neophyte importer may have had with price quotations.

In order to more clearly define the most frequently used terms, to promote better commercial understanding, and to standardize procedures, the revised foreign-trade definitions have been established by a joint committee representing the Chamber of Commerce of the United States of America, the National Council of American Importers, Inc., and the National Foreign Trade Council, Inc. The clarity of

these terms helps to make foreigntrade purchases and sales almost foolproof, provided the negotiating parties understand the conditions on which they base their contracts.

Disagreement over contract terms in international trade is no more uncommon than in domestic business, except that it is less easy to adjust. Some of these business quarrels undoubtedly arise from dishonest dealings, but most of them originate in honest differences of interpretation of meanings of words and phrases. The courts and arbitration boards are literally loaded with such cases.

C.i.f., often pronounced "cif" stands for cost, insurance and freight to a named port, thus: "c.i.f. Portland". The buyer of the merchandise under this term could expect delivery to the designated port with all costs paid thereto. Under this form, "cost" represents all costs involved in taking goods to shipside, placing them in custody of the carrier at port of export, and getting a clean bill of lading. Obviously, such items as factory cost, switching charges, rail freight, fire insurance premiums, wharfage, handling export taxes, and sometimes interest, are included.

Insurance is marine insurance, and here again definite understanding must be reached as to the exact nature of the coverage which the buyer wants. It does not include war risk, which is always for buyer's account. Freight is ocean freight, usually prepaid by the seller. Thus, the purchasing agent can expect delivery of his merchandise all costs paid, laid down at the port of import.

### Must Accept Documents

But specifically, what are the obligations of the buyer? By the very nature of the transaction, there are documents: the ocean bill of lading with draft attached, the invoice, marine insurance policy or certificate, consular invoice (all of them properly endorsed), and especially required papers such as grading and weighing certificates. If the contract has been based upon the standard quotation form under discussion, then the buyer's first obligation is to accept these documents when they are presented by the bank. courts firmly uphold this feature of a c.i.f. contract.

The unequivocal position of the buyer in regard to documents is based very largely on the prior responsibility of the exporter to furnish a clean ocean bill of lading. When this and other documents have been dispatched to the buyer or his agent, seller's responsibility ceases. More concisely viewed, delivery of documents is the concluding act of the exporter, and their acceptance that of the importer. The importer thus not only buys goods, but also buys documents. It should be emphasized that the seller does not guarantee delivery of goods to the named port. He simply quotes a price to it.

### Inspection Waived

Finally, the buyer must remember he does not have the right of inspection of goods before he accepts documents. The rules are again very precise: "he should not refuse to take delivery of goods on account of delay in receipt of documents, provided the seller has used due diligence in their dispatch through the regular channels." Obviously, this is one place where an inexperienced importer can easily get into plenty of trouble, and the point should be reiterated. When a buyer takes delivery of his goods from the ship, he must pay landing costs if any, duties, taxes, and other expenses incident to getting the goods into his warehouse.

These are the principal features of one of the most convenient and frequently used terms in importing. Although the terms are standardized, over-emphasis cannot be placed upon the necessity for complete understanding of the meaning of the various provisions outlined below. Little, bothersome expenses are likely to crop up unexpectedly; these are the business gremlins of the worst kind and can be the ruination of an otherwise profitable business relationship. The custom of the trade will prevail ordinarily, but the importer must be presumed to know what that accepted practice is before the contract is signed.

### **Obligations Summarized**

Details of the obligations of buyers and sellers under c.i.f. are given herewith:

Under this term, the seller quotes a price including the cost of the goods, the marine insurance, and all transportation charges to the named point of destination.

Under this quotation:

Seller must

- 1—provide and pay for transportation to named point of destination;
- 2—pay export taxes, or other fees or charges, if any, levied because of exportation;

- 3—provide and pay for marine insurance:
- 4—provide war risk insurance as obtainable in seller's market at time of shipment at buyer's expense, unless seller has agreed that buyer provide for war risk coverage;
- 5—obtain and dispatch promptly to buyer, or his agent, clean bill of lading to named point of destination, and also insurance policy or negotiable insurance certificate;
- 6—where received-for-shipment ocean bill of lading may be tendered, be responsible for any loss or damage, or both, until the goods have been delivered into the custody of the ocean carrier:
- 7—where on-board ocean bill of lading is required, be responsible for any loss or damage, or both, until the goods have been delivered on board the vessel;
- 8—provide, at the buyer's request and expense, certificates of origin, consular invoices, or any other documents issued in the country of origin, or of shipment, or both, which the buyer may require for importation of goods into country of destination and, where necessary, for their passage in transit through another country.

Buyer must

- 1—accept the documents when presented;
- 2—receive the goods upon arrival, handle and pay for all subsequent movement of the goods, including taking delivery from vessel in accordance with bill of lading clauses and terms; pay all costs of landing, including any duties, taxes, and other expenses at named point of destination;
- 3—pay for war risk insurance provided by seller;
- 4—be responsible for loss of or damage to goods, or both, from time and place at which seller's obligations under (6) or (7) above have ceased;
- 5—pay the cost of certificates of origin, consular invoices, or any other documents issued in the country of origin, or of shipment, or both, which may be required for importation of the goods into the country of destination and, where necessary, for their passage in transit through another country.

BEHIND every science and art, there exists a philosophy. Economic forecasting is, of course, not an exact science any more than is law, or golf, or business.

But to understand why the wheels go round, is essential. I am trying in this paper to find this philosophy by finding the background from which it is derived, and by taking a long-range view on the theory that long-range prophecy is a pleasant exercise for the imagination while short term prophecy is a dangerous game as it deals too directly with the interest of the living. In the latter case, if you guess right you will probably arouse such resentment that most disagreeable things may ensue; also you will be disproved in your lifetime, and that hurts one's self respect.

### Production No Panacea

What is the great illusion that we have been going through? Personally, I think it was the illusion that the increase in the volume of production could only be beneficial. The real American economic disease is our ability to overproduce in every basic line. Going back over American history one finds that our real troubles were caused by surpluses not shortages. We never did have a serious depression in the United States due to the scarcity of anything, but rather all of our depressions have been caused by over abundance. As probably our greatest military genius, Homer Lea, pointed out: "It is on account of this increasing productivity of man due to the use of mechanical inventions that nations will suffer in the future, not from under but over developed industrialism.

It is well to point out at this time that the appearance of scarcity is no proof of scarcity. Under conditions of rising prices goods will appear to be scarce when as a matter of fact the actual supply could be far in excess of current needs. No one could convince the cattleman or the farmer to part with his meats and produce as long as prices were going up, and so they held their products off the market, creating temporary scarcities in one product after another.

Second, the idea that our money on account of great spending would become worthless in spite of the fact that our approximately 12 billions of dollars of American currency in circulation is backed up with approximately 700 million ounces of gold. This fact made the whole world anxious to acquire our money, as there is not anywhere in the world

### THE JOKER IN THE DECK

How high public debt and taxation undermine the foundations of the capitalistic system of free enterprise and impose state control

### By J. W. Knowlton

Duke Power Company, Charlotte, N. C. Economic Advisor to the Carolinas-Virginia Purchasing Agents Association

today any sure sign of change in that age-old human faith in gold as the one sure and safe form of "storage of wealth" when all else fails. It is that faith which has made gold the ultimate money for mankind. Mystic as it may be, this faith is the one real fact, against which all the arguments of the Inflationists have so far failed like breakers on a rock. One of the outstanding facts in the world's economic history is the way history repeats itself in matters relating to gold and money.

### Communist Crusade

A third illusion probably was our failure to realize that the conflict between Russia and ourselves is intercultural in the completest sense of the word, and between the two antagonists there is no common ground upon which to base a peace. One culture must destroy the other. That is the thing we must understand and face when we think or talk about peace, for it is the key to everything else. We will be able to see what is going on and endure the long period of friction which lies ahead if it is frankly conceded that we are not going to have peace in any real sense of the word, but a period of armed truce while the communist and non-communist sectors of the world are being consolidated. According to Russian philosophy, there never can be one world unless the world is wholly communist. As long as the world remains divided into communist and non-communist sectors friction is in-

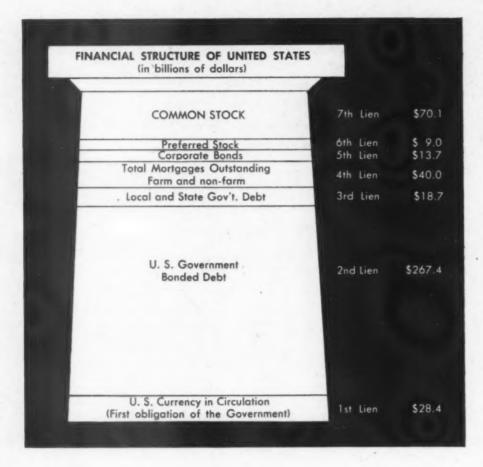
The Russian idea has never been repudiated or substantially altered during the war or since, and those people who tried to make us believe that fundamental changes were occuring in Russian conceptions were merely deceiving themselves as well as most of our people.

One thing is certain: if there is ever a coalition of Germany and Russia, such a partnership would have the resources sufficient to prettv much divide the areas in the Mediterranean and Near East now controlled by the British. The economic angle to this is that the Russians are undoubtedly influenced by the predictions of Moscow's economist, Eugene Varga, that the Western Hemisphere will experience a severe depression within the next year. In such a case the political influence and prestige of the Western capitalists would decline. Commercial loans would be available for Russia at much better conditions than at present. Meanwhile German machines and technicians must be incorporated into the Russian economy before a program for additional supplies can be specified.

### Foreign Forecasts

This foreign view is reinforced by that of Gunnar Karl Myrdal, Swedish Secretary of Commerce and one of Europe's leading and most respected economists, who said just before the end of the war: After the end of the war, America will experience a high degree of economic unrest. It is possible that a sellers' market will be established so generally as to avoid an immediate post-war slump, but probably within a period of one to three years this will change into a slump and this slump may turn out to be the culmination of the gigantic crisis of 1929-32. The economic development of America is going to have serious repercussions on the world.'

Address at the quarterly meeting of the Carolinas-Virginia Purchasing Agents Association, Charlotte, N. C., November 22, 1946.



I am using these foreign opinions with the idea that they might have better perspective than our own. In this connection it might be well to note what the South African Pre-mier Field Marshal Smuts, who ranks today as probably the ablest, most experienced and observant elder statesman of the British Empire, had to say. Smuts was one of the first men in high office who, during the war, pointed prophetically to the unique position of power which Russia would enjoy in Europe and Asia after the end of hostilities because of the destruction of every element of check and balance in the great European and Asiatic land masses.

It is clear today that no matter how we play our cards, Russia has the most trumps and the bulk of Europe is going communistic, but of course the process will require several years.

Napoleon predicted that Europe's eventual conflict would be not between states, but between ideas and beliefs.

### Spheres of Influence

With the freeing of controls, the fate of the last great free economy in the world will almost certainly depend on whether business and the Conservative party manage affairs

so as to prevent or to bring on another 1929. If 1929 should come again, our cherished institutions may be superseded by state-ism and dictatorship-not through conspiracy of communists but through the fateful sequence of unemployment, economic maladjustments and resultant social disorder. In the international world the return of the United States to a policy of essentially free markets will accentuate the differences already quite clearly visible among the western powers. Britain, France and Western Europe will not follow us on the social and economic course we are taking. This is sure to be reflected in their diplomacy and in our own. The world will not divide into two blocs but into at least three The Russian, the West European Socialist, and our own capitalist free economy.

This all seemingly harks back to what the great British scientist Sir Arthur Keith once said in regard to the futility of economic forces to cure the present situation: "Man has been seeking after false gods; power, trade, and wealth. Nature is now bringing him to book. Nature has so ordered things that ultimately mankind must carry out her scheme, which is the production of manhood. For this reason she demands that the world should be

broken up into separate self-contained nationalities. Nature scoffs at the laws of economics. Nationalism is Nature's call, and it is just because she has called that economic disaster has fallen on us." Strange to say, while this is apparently contrary to the laws of economics, it explains almost exactly what is happening. Draw your own conclusion.

### Money and Prices

Let it be particularly noted that most important effect of the present international developments as they affect our price structure is their tendency to speed deflation.

In a nation's history, extended periods of price declines are anything but pleasant as compared with periods of rising prices. Nobody has ever yet invented a way of stopping inflation without making money dear, as in 1920 and 1929, or relatively scarce as in 1937, and so bringing on deflation, depression and unemployment.

Because the forces at work at this time are more powerful and adverse than any encountered in the past, it is inevitable that this coming period of price deflation will be extremely serious. Now a long period of declining prices does not necessarily mean that no individual or corporation will make money during such a period. There will always be opportunities to make money for the individuals and firms who adjust themselves to their new environment-particularly those who do not fall for the national "dream' that a long period of rising prices is ahead. The individual who recognizes today that we are in the midst of our third major redistribution of wealth and that the facts of the situation call, not for following the crowd, but for the building up of a strong liquid position, will be successful. Today there is no "better hole" to go to than cash which will pay you dividends as prices fall and its purchasing power increases.

Money goes up in value as other prices go down. A bull market in money is ahead. The one who takes this course will preserve his wealth, as did the families who recognized in time that landed estates were losing their financial and political power, and then turned to commerce and industry to build bigger fortunes. You must realize the economic forces at work. Trends are more important than events. There seems to be a law of Nature according to which rhythm so rules things that just when a situation

seems quite hopeless a turn comes. This was well illustrated recently in the breaks in both the stock and

commodity markets.

Underlying all of the factors which brought this break about was one which was so all-pervading that it was scarcely noticeable at the time. That was the high cost of living. Something had to break sooner or later, and in similar circumstances in past times something did break when the toleration point was passed. Just as confidence ruled up to that point, now that the break has come we will find that fear is the prevailing motive. All studies of crowd psychology clearly show that fear is more contagious and more impelling than confidence, and that when fear grips the mass mind it leads to wide and unpredictable fluctuations.

### Freedom vs. Control

In my opinion, one of the most penetrating analysis of present conditions was that made by L. M. Giannini, President of the largest chain banking system in the world in answer to the question-"What in your opinion, does the decline in prices of corporation stocks signify?" Among other things were these words: "We now have an economy which is neither planned nor free. The general unbalance resulting from this attempt at a compromise between a free and a planned economy has resulted in distortions which hamper and if continued, will ultimately defeat the American system of free enterprise.'

The recent flop of the CPA brought out clearly the futility of trying to combine two systems of economy. We can plan an economy of free enterprise or an economy of State Socialism, but not one combining the best features of both. Once we turn into the road marked "State Socialism" there is no turning back or stopping; we must go to the end of the road. If we want to take that road, well and good, but let us at least not stray unknowingly into it.

With approximately 58 million workers at work and the electric load in many instances going over the war load, it is possible that the near future will show a turn about in the entire context of existing controls—not to prevent inflation, but to avoid deflation; not to hold prices down but to support them. This idea is reinforced from the fact that irrespective of shortages actual production is still the greatest in peacetime history. It is a sad story, but the truth of the matter

is that neither the public generally nor the business community is prepared to accept restoration of a genuine free economy. They apparently advocate free economy for themselves and planned economy for the other fellow.

Nothing is clearer than the fact that American business is no longer sure that it wants free economy and has even developed a large left wing of organizations and propaganda actively promoting schemes of government planning to control purchasing power and consumption based on the gospel of Karl Marx and John Maynard Keynes. Mr. Keynes, a British economist, sold our government on the theory of government spending based on the creation of purchasing power through bank credit, and it became the leading phenomenon of the past decade, which was an era of deficit financing deliberately adapted for the purpose of pump priming with the central idea that it makes no difference how big the domestically held debt becomes. It may be that business senses the fact that in a socialized world no private business can compete with a nation in the world's market.

Agriculture too wants government price guarantees, subsidies, and world stabilization plans. Labor leaders, scientists, and professional men are similarly infected and are working in many ways to prevent a return of economic freedom. Another force working against a free economy here is the opposition to such a step by nearly every foreign government. Our own government has been engaged in negotiating global economic agreements and arrangements which compel and in effect guarantee the continuance of a politically controlled economy in America idefinitely.

### Collectivism is Rising

The extension of international collectivism through the economic mechanicisms of the UN has become for the rest of the world a powerful safeguard against the revival of a free economy in this country. To many what is happening means that we are simply going to repeat the pattern of the last postwar period. First, we had commodity prices run up, only to be followed by a sharp decline, and then a long bull market in the twenties. Unfortunately, the conditions in this country and the conditions in the world at large, are as different as night from day when compared with the last postwar period.

One world war during a generation made us "groggy"; a second one during the same generation has really made us "sick". This turn from free economy means changes in many other conditions upon which most groups have come to depend in one way or another and which most Americans take for granted as necessary and normal today. That is one reason why the coming crisis will probably be more severe than another business depression and may mean a profound upheaval in American life.

This country has experienced depressions in the past—depressions with which private wealth and private industry could successfully cope. This coming depression, however, involving as it will the very credit of the government, will bring with it problems beyond the control of private hands, so that some form of State Socialism may be in the offing. The major cyclical declines in production, employment, and prices that are ahead will be intensified by the effects of 13 years of government control of the economy.

The power to influence economic forces will provide temptation for the government to go beyond financial management into the realm of planned economy. The debt mechanism is capable of use in the redistribution of wealth and income. While the politicians control the money supply, they cannot control the price level for any extensive period; but this situation can also mean a redistribution of ownership and control over industry and business. Always keep the basic fact in mind that during the last decade we have violated practically every single rule for economic and national health. The inescapable result is that the reaction in the other direction will be more violent than any this country has ever experienced. The eternal and universal law of balance does not overlook economics.

Already it is true that the phase "Profitless Prosperity" has become genuinely applicable to important and numerous segments of business in 1946. As an example of this we have a recent statement of General Electric Company which shows earnings of one cent a share against \$1.35 for the same period last year. This undoubtedly prompted Charles E. Wilson, President of General Electric Co., to make the following statement: "It looks to me as if our economy were in a much worse situation than is generally believed, and it is certainly our duty to make it crystal clear to the American pub-

### HOW THE UNITED NATIONS ORGANIZATION SEEKS INTERNATIONAL STABILIZATION





Eighteen inembers elected by the UN Assembly, to coordinate the work of affiliated organizations to eliminate economic and social roots of war.

INTERNATIONAL



Part of the Bretton Woods plan, ratified by 35 nations, to provide funds for reconstruction.

INTERNATIONAL MONETARY FUND



Also part of the Bretton Woods plan, will be employed by member nations to help stabilize currencies.

FOOD & AGRICULTURE ORGANIZATION



A research and study organization, endeavoring to raise food and nutrition standards throughout the world.

EDUCATIONAL, SCIENTIFIC & CULTURAL. ORGANIZATION



To develop international cultural understanding.

lic, including the workers themselves, just what they are heading into. They are heading for depression and unemployment just as certainly and logically as night follows day."

### The First Mortgage

The government through high taxes has been constantly drawing out the liquid reserves of corporations and leaving nothing in the way of reserves for the inevitable rainy day. It makes little or no difference if a corporation itself floats bonds under its own name and thereby puts a mortgage on its business or whether the government does that for them in the form of issuing what are called government bonds. The carrying charges of these bonds are

paid by the corporations and they are just as much a first mortgage on a corporation as if the corporation's own name were carried on the bonds. This United States Government Bonded Dept. is what I have facetiously termed "The Joker in the Deck" because very few realize that this first mortgage stands between them and what they own.

The accompanying graph shows the different liens and the order in which they occur. For some time past, almost every one has heard the theory that government bonds and cash in the bank are going to be worth nothing, whereas the ownership of common stocks and things was going to be the magic way of getting on the road to wealth. Accompanying this theory the state-

ment usually is made that the public and corporations are both bulging with cash and liquid wealth, and yet, by some strange process of reasoning it is said that the government is going to have difficulty in getting money to pay its interest on its bonds and its other expenses.

All this reasoning is plain Bunk. The simple fact is that the first primary mortgage on every single dollar of assets and earning power in the United States is the government debt itself. Before any danger arises to the basic value of money in the bank and the government's credit, you can rest assured that the other Junior Liens—that is the common stocks, preferred stocks, and private bonds—will be largely wiped out. So long as there is an ounce of

blood in the way of earning power, the government's credit is perfectly good. At no time in America's history was the mortgage on the legitamate individual paying taxes and the legitimate corporation greater than it is today, as the chart shows.

The chances are that this mortgage is so big that it is practically impossible for a man to build an estate legitimately. With the exception of those who deal in cash and thus dodge taxes, the carrying charges on this mortgage will prevent the expenditure for capital items on the part of individuals. Just as the wise individual at the race track would just watch the races and refuse to gamble if the "take" exceeded 20%, so also will the prudent individual who is at all interested in his financial future be wise in building up cash balances and pursuing a policy of complete liquidation until enough deflation has been seen to warrant the assumption of risk under present tax

No one yet has ever beat the law of averages, and the law of averages is set against you today.

### Working for Taxes

In practical terms, if you want to know what this means to corporations, let us take two of our greatest firms, the United States Steel Corporation and Chrysler Motors. Steel produces 1% of our national production and, therefore, must pay directly or indirectly the amazing sum of \$360,000,000 in the coming fiscal year. The Chrysler Corporation produces 6/10 of 1% of the national income and, therefore, must pay directly or indirectly \$216,000,-000 in the coming fiscal year. These figures do not include payments for social security, unemployment insurance, etc.

Remember this is the first mortgage on earning power, as it is the obligation of government and must come before dividends or any other expenditure.

For a while, both corporations and individuals were kidded into believing that enormous wartime armament appropriations and taxes would be eliminated at the close of of the war. But American corporations and most American individuals must now give most of their earning power to the payment of the twenty billion dollar annual armament appropriation for a completely non-productive purpose.

There is one group that is escaping and will continue to escape this enormous taxation, and that is the group of individuals who do business on a cash basis. With the cost of this armament program so high, a substantial minority of the population will avoid their share of the burden by dealing in cash. We, therefore, face a strange situation where a minority of the population will be increasingly prosperous and living as though the world were a grand place, whereas the majority of corporations and individuals will pay and pay.

The existence of a huge federal mortgage on all of the people does not by any means mean an increased demand for goods. Rather, this has the same effect on the purchasing power of an individual as though he himself placed a huge mortgage on his home and had to meet that mortgage with quarterly payments. Insofar as supply is concerned, the creation of this huge federal mortgage has brought with it the greatest increase in productive capacity that any single country has ever possessed. This means not a short period of low prices, but rather the greatest deflationary movement this country has ever seen.

The inflationists would have you believe that the first mortgage on the United States was the holder of common stocks or the equity holder of real estate and farms. Nothing could be farther from the truth. Since the federal debt is the debt of society as a whole, the government has the power to exact increased payments from the holders of all the junior paper and it also has the power to exact more taxes from all the consumers of goods. The record proves that the government will continue to exact more and more taxes from all the holders of junior paper in order to enable it to meet the carrying charge of this debt of approximately five billion dollars. As long as there is any earning power on the part of the junior holders, the first mortgage is perfectly good.

As this huge first mortgage has been built up, it has meant a certain redistribution of wealth for the simple reason that the possession of a large first mortgage on American assets by the Federal Government means that slowly but surely the title to the assets will pass to the Federal Government and its nominees. The talk at the moment is now deflation, where only a short time ago it was inflation. The stock market has been hollow as a gourd for a long time, and many factors contributed to the fragile understructure. The entire private enterprise system is at stake. The American people do not seem to get through

their collective heads that the capitalistic system revolves around profits and nothing else but profits.

### Threat to Capitalism

If the middle class is to be wiped out and corporation profits squeezed close to zero, how can the capitalistic system live? Capital is caught in a vise, and if the present trend continues ultimately there will be no profit at all regardless of the volume of business done. This is, of course, a school of thought in our government which want this very thing to happen. They say the Western World is undergoing a structural change which is no less basic than was the Industrial Revolution, and if the economic world that we know is evolving to some new form of state capitalism, therefore we cannot assume that public spending is wholly evil. Undoubtedly, the ones who hold this last idea are the ones who believe in planned economy.

The break in the stock and commodity markets gave us insight as to the deep and quick depression ahead that faces us. Never in the history of commodity prices have we witnessed such violent changes as occurred during October of this year. It would be one thing if American industry were going through the first round of strikes with some reserve as they did last year but the fact of the matter is that this is the second year in which strikes have impeded production, skyrocketed costs and left American corporations with huge unbalanced inventories and little

Another round of strikes will deal a severe blow to our commercial and business enterprises. Going to the 1929-32 depression as a hint to where to look for the second blow, one can safely say that the collapse of the Pound Sterling, beginning in the fall of 1931 and ending up with the closing of every American bank in the spring of 1933, wiped out more American fortunes than perhaps any other development in our lifetime. It had the same effect as a money market demanding 15% or 20% interest. It meant a period of international cutting of prices. It took American capital completely by surprise inasmuch as there isn't one American out of a thousand that ever had to study foreign exchange in the course of his business.

Going back over the history of not only our own country but that of other Anglo-Saxon people as well, it appears that about an average of

(Continued on page 299)

### WOMEN PURCHASING AGENTS AREN'T SISSIES

· By Marian D. Seeley Purchasing Officer, U. S. Maritime Commission A very considerable part of today's purchasing, in industry and government, is being done by women buyers, and they are doing an excellent job

THERE is a lot to be said about the role of the woman purchasing agent today, in industry, in government, and wherever there is a big

procurement job to be done.

It took World War II to definitely prove that women can perform equally well the purchasing work which the male species felt

that only they could do.

Although many men will still violently deny that a woman can competently handle any purchasing assignment, we need merely examine a few of the top notch jobs held by women throughout the country for evidence that women purchasing agents today can hold their own in the highly specialized field of purchasing.

No longer can the purchasing department ignore the value of its women employees, nor can top management overlook the consideration of women purchasing agents when contemplating promotions or re-cruiting for new blood in their

organizations.

The women purchasing agents who previously may have been given small purchasing assignments, such as buying office stationery and supplies or perhaps domestic items such as linens, cooking utensils, etc., now can equally boast of handling the most difficult procurement assignments.

It is truly a problem to break down the artificial barrier that has been placed around the woman purchasing agent. She has had a hard struggle all along the way, but the assignments which were given to her and which she has successfully completed during the war years show that she has removed this barrier and can now compete with the best of the men purchasing agents.

Take for example Miss Harriet M. Lorenzen, Purchasing Agent for Pennsylvania Central Airlines, She is responsible for the procurement of such items as steel, furniture and

THE AUTHOR is a charter member of the Women's Division, Purchasing Agents Association of Washington, D. C. Only a few years ago, it was exceptional to find women included on Association membership lists. Today a majority of the Associations number capable women purchasing executives among their most valued and active members, and in four cities— Washington, Chicago, Memphis and Seattle—affiliated Women's Divisions carry on a full schedule of meetings and activities comparable to that of the men's groups.

textiles. The airline business today is a highly competitive one, and every expenditure must be wisely Miss Lorenzen has to compete with the men purchasing agents in this field, and it is evident that top management considers her to be equally as able to handle this assignment as any man.

In the Maritime Commission's greatest ship building program this country has ever known, Miss Margaret M. Byrne was responsible for the procurement of furniture, furnishings and decorations, as well as plastic armor, a protective material for ships. The handling of plastic armor was one of the most difficult procurement assignments ever handled. Furthermore it proved that a woman can handle an assignment which required "secrecy". This was a highly confidential item, and one of the chief requirements of the job was the ability to keep a secret, inasmuch as it concerned a vital military problem.

In the Washington office of the Chesapeake & Potomac Telephone Company, Mrs. V. M. Colvin not only has to do a good job of buying but she is required to keep the top executives contented with her purchases inasmuch as she procures all the furniture and office equipment necessary to put the key officials in a happy frame of mind. Buying furniture in market conditions that existed during the war years, and which have continued tight to this very moment, is certainly no snap job.

Paint and allied products, photographic equipment, and machine and hand tools are purchased by Miss Florence Mermes of Treasury Department's Procurement Division. All purchasing agents will agree that these items are difficult ones to handle, involving technical considerations, and that good background, judgment and wisdom are needed to

do good buying. Mrs. Helena C. Butters, who formerly was purchasing agent at the Boston and Maine Railroad, bought materials and equipment needed for the operation, maintenance and repairs of a railroad. During the war she was in charge of the Lend-Lease program of the Maritime Commission and was responsible for procurement of a variety of hard-to-get items. At present she is buying marine equipment, a highly specialized field.

The old bromide that a woman



The Waukegan News-Sun and Cleveland Press find headline value in the outstanding success of women purchasing agents today. Of course, there's still a die-hard minority opposition, as indicated by the clipping from the Philadelphia Record.



MARGARET M. BYRNE
Purchasing Officer, U. S. Maritime
Commission. President, Women's Division P. A. Assn. of Washington



ELAINE WILKINSON

Bureau of Federal Supply, U. S.

Treasury Department



HARRIET M. LORENZEN
Purchasing Agent, Pennsylvania Central Airlines

Notable evidence of the part that women are playing in the industrial purchasing field is found in the roster of the Cleveland Purchasing Agents Association, which proudly calls attention to ten active women members, with an average record of 131/2 years in purchasing work. Most of them are affiliated with manufacturing organizations of a strictly industrial or technical nature. They are:

Freda B. Haynes, Purchasing Agent, Fairmont Tool and Forging Company. Irene Limoli, Assistant Purchasing Agent, Bunell Machine and Tool Company. Martha E. Lubahn, Purchasing Agent, Cleveland Hardware and Forging

Margaret McBride, Purchasing Agent, Dougherty Lumber Company. Eleanora M. McGuire, Purchasing Agent and Assistant Secretary, Rex Metal

Evelyn L. Moir, Purchasing Agent, Globe Stamping Division, Hupp Motor Car Company.

Helen A. Strucker, Purchasing Agent and Treasurer, The Ridge Tool Company,

Loretta A. Theus, Purchasing Agent, Weldon Tool Company.

Anna T. Thompson, Assistant Director of Purchasing, Huron Road Hospital.

Phyllis M. Yarans, Purchasing Agent and Secretary, Maurath, Inc.

can't keep a secret is just a lot of "tommyrot". In Mrs. Butter's case, she was in full knowledge of many important secret military operations. A leakage of news would have caused considerable harm to this country as well as to our allies.

If you call procurement of heavy machinery a man's job, you can take a back seat, for Miss Elaine Wilkinson, who is employed at the Procurement Division of the Treasury Department, has as her assignment the obtaining of heavy machinery and related items. The Procurement Division is one of the largest purchasing organizations in the world and it is certainly proof that assigning a young lady of Miss Wilkinson's ability to such a position confirms the fact that women purchasing agents can and are doing a tremendous job in purchasing activi-

Miss Mary A. Slater, Purchasing Agent for the firm of Chas. H. Tompkins Co., Constructing Engineers, Washington, D. C., purchases a great number of construction items including such materials as structural and reinforcing steel, cranes and hoists, bowling alley equipment, plumbing, heating, electrical and refrigeration supplies, elevators, etc.

Anyone who knows the building game is fully aware of the problems presented when it comes to buying items of this nature. Constructing companies work to "deadlines" requiring careful scheduling and positive deliveries. In times like these,

when the whole country is crying for items handled by Miss Slater, you must agree that she is doing a man-sized job and doing it well. The record of the Chas. H. Tompkins Co. speaks for itself.

The writer, during the war, was

responsible for the procurement of all the hull steel, consisting of raw items such as plates, floor plates, structural shapes, bars and sheets, used in construction of ships for the emergency program of the U.S. Maritime Commission. Approximately 250,000 tons of steel per month, amounting to about \$12,-000,000, were purchased. Also under her direct supervision was the procurement of wire rope, copper and brass items. This purchasing called for the solving of some of the most perplexing production prob-lems ever faced. The rate of completion of our merchant vessels is proof that the job was well done.

Throughout the country there are many more evidences to bear out the fact that women purchasing agents have and can tackle the most involved purchasing assignment.

Women are natural purchasing agents. Their experience in purchasing dates from the time they first go out and buy a penny lollypop. Statistics will prove that the greatest purchasing power today is in the hands of the American women.

Put on your boxing gloves if you want to! We had better warn you, however. You'll find the women purchasing agents aren't sissies.



# Pages From a Buyers



# Notebook

### BUYING INSURANCE

0

0

I wonder how many purchasing agents pay enough attention to matters of insurance. Generally it is handled through the treasurer's office and is one of those things we take for granted, but it is also an important factor in many of our contract agreements. On our general contract form, for example, we require the contractor to provide no less than nine different kinds of coverage:

Workmen's Compensation or Employer's Liability Public Liability (both bodily injury and property damage)

Protective Liability on subcontracted portions (both bodily injury and property damage)

Contractural Liability (both bodily injury and property damage)

Automobile Liability (both bodily injury and property damage)

As a matter of personal interest, I followed through and found that our company is concerned with more than thirty kinds of policies, either directly or through our contractual relations with suppliers. It is a highly specialized field, but whether it belongs in the purchasing department or not, certainthis is a problem of procurement that deserves careful study both as to cost and more especially in seeing that we get the protection we need and for which we are paying.

### "NORMAL" MARKETS

A very large proportion of the men in purchasing today have never had the experience of buying in markate for the past savaral vagre it has normal markets. For the past several years it has normal markets. For the past several years it has been a case of priorities, allocations, inventory limitations and ceiling prices. Value was a minor consideration; we compromised our standards of the all-important factor. Certainly that is not a

Before that, we had the great depression and the regulations of NRA, followed by a couple of years of pre-war boom during which we were in years of pre-war boom during which we were in a frenzy to accumulate extraordinary stocks of materials, often without knowing just what we were going to do with them. That takes us back nearly and shortages offers no immediate prospect for more nmeen years. And the present state of uncertainty and shortages offers no immediate prospect for more normal behavior.

Some people will tell you that there's no such thing as a "normal" market—that business is a continual swing from buyers' markets to sellers' markets at a sellers' pre will tell you mat there's no such "normal" market—that business is a continual swing from buyers markets to sellers markets and back again. But the other day I ran markers and back again, but me orner auy a across a definition that makes a lot of sense:

A normal market is one in which you can plan a normal marker is one in which you can plant ahead and have a logical reason for your decisions.

### TRAINING FOR LEADERSHIP

One of the leading industries of our city is a fine old company that has been operated by three generations of one family with rather conspicuous success. They are making room now for the crown prince, a personable youngster who came back the war a year ago with a chestful of medals and has just finished the college course that was interrupted when he took to the air. He has what it takes to carry on, but of course he's green as grass so far as the business is concerned.

His dad has put him to work in the purchasing department as a starter. He says:

"I don't expect to make a purchasing agent of the boy, but there are five good reasons, in my opinion, why this will give him the best possible training to take over when I step down.

"In purchasing he will have to know everything that goes into our plant and how it is used.

"He will learn the value of a dollar. "He will meet a lot of people, both those from

the plant and those from the outside, and he will have to learn to get along with them.

"He will learn how other people do business. "He will realize that no business is contained within its own four walls, but depends on the good will of its suppliers as well as of its customers. will or its suppliers as well as of its customers. It's an art to be a good customer. It requires salesmanship of the highest order, and there's no better way of learning to put yourself in the other fellow's place."

### P. D. Q.

Rush orders, which do not allow the purchasing officer sufficient time to do a thoroughgoing and workmanlike job of buying, are the bane of purchasing agent's existence. He may find some measure of satisfaction in the ability to meet the emergency, but he is rarely able to take pride in sort of procurement and it doesn't look good in the year-end audit of company costs or purchasing performance.

One of our production men sent in a requisition the other day with the notation "PDQ", meaning "Pretty Damn Quick". It reflected the wartime philosophy that delivery is the only thing that counts. But it gave me the opening to point out that these initials have another meaning for the purchasing agent, for in our book every purchase must involve the consideration of:

> Delivery Quality

Time and timing are essentials of any successful purchasing program. They should not be consistently sacrificed to cover up lack of foresight in regard to material needs. The great majority of rush requisitions could be avoided by reasonable planning, and cooperation to eliminate unnecessary in-stances of this sort should be a part of company policy. Quite aside from the nuisance and inconvenience involved, haste costs real money.

O

### **PURCHASING POLICY**

By Alfred Bornemann •

Basic decisions on alternative courses of action under varying economic, political and technological conditions, provide the framework within which the functional and administrative decisions of a purchasing program and procedure must be worked out



A DISTINCTION between business policy and business management is useful for some purposes. Whereas management may be thought of as involving the application of generally accepted principles, policy involves a choice of alternatives in connection with im-

portant matters.

This distinction may be applied to the different aspects of business. For instance, financial policy, production policy, and marketing and price policy might be distinguished. Purchasing policy is related to all three of these, although more directly to production. As a matter of fact, purchasing may be viewed as the first step in production, or as an operation that is prerequisite to any production schedule.

The initial organization structure of a firm may or may not reflect the best judgment regarding the place of the purchasing officer. Nevertheless, for purposes of analysis, the purchasing official may be presumed to be responsible for determining the best method of organizing the purchasing function.

### I. DEFINING THE RESPONSIBILITY

It is obvious, of course, that no single, inflexible organization can be prescribed as best for every firm. Differences in size, in the type of business, sometimes even in personalities, as well as in other matters, call for differences in the details. There are, however, certain fundamental factors which must be considered in determining any firm's purchasing organization.

The purchasing function may be defined as the responsibility for material. This responsibility for material usually includes some responsibility for determining specifications, complete responsibility for procuring the materials decided upon, and, finally, responsibility for the flow of such materials up to the point of their utilization in production.

The importance of cooperation among the various officials of a firm is illustrated by the fact that decisions regarding the quality of materials to be bought are frequently the joint responsibility of several officers, including those responsible for production, engineering, and purchasing. Final responsibility for the actual commitment to purchase rests, however, with the purchasing agent.

Decisions must also be made regarding the price policy to be followed in buying, as well as the quantities of inventories to be held. Inventory policy is related to the

planning and scheduling of purchases of materials. Purchasing policy must also be determined in the light of estimates concerning future fluctuations in business activity and prices. de

th

tl

If the purchasing officer is completely responsible for materials, his duties extend to supervising traffic matters, having to do with shipping and transportation, and to expediting, involving contacts with suppliers during the production process.

On the whole, the foregoing considerations relate primarily to external relationships. It is now possible to turn to what may be conveniently designated internal rela-

tionships.

The internal factors which must be considered in determining a plan of purchasing organization revolve about the basic problem of controlling the flow of materials within the firm, which may have one or more plants. Scheduling and material controls must be worked out in relation to production schedules. In doing so, provisions must be made for inspection, quantity control, and storeskeeping. Quantity control and storeskeeping are, of course, related to inventory policy, which has already been mentioned. A policy decision must also be made with respect to the disposal of scrap.

However, internal policy decisions on these important matters cannot be carried out without significant decisions regarding record keeping. Numerous details are involved in the entire procedure. Requisition forms and purchase order forms must be developed. Records facilitating the receiving of goods, as well as their inspection and storeskeeping, must be worked out. Although these include merely the most fundamental forms and records, the importance of rejection

notices, requests for invoices, requests for quotations, credit memos, and others cannot be minimized. The importance of an adequate library must also be considered and a determination must be made of what is to be included.

The ultimate purpose in developing satisfactory record keeping is to facilitate the efficient movement of materials up to the point where they are used in production. Although records are universally kept, the important point is to keep the kind which will best accomplish such efficient handling of materials.

Decisions on practically all of the foregoing matters are likely to be somewhat more complicated in firms with decentralized plants. The problems are not only more ramified, but there is also a basic question concerning the possible desirability of decentralized buying of some items. The content of this problem of decentralized buying will, of course, depend upon the nature of the particular firm's decentralized plants and their products.



### II. NEED FOR FLEXIBILITY

T HE discussion thus far has been in terms of some of the more important matters involved in initial organization. It has, in fact, been implied that policy is more or less static. In reality, however, there must always be some adjustments in policy and these are frequently likely to be more important than the initial decisions based on certain assumptions as to what is most like-

ly to occur.

Such adjustments in policy are likely to be particularly frequent following a war. Wartime experience may, for example, have suggested the desirability of stronger sources of supply, or possibly some features of subcontracting. Old vendors may be no longer engaged in the production of materials which they formerly supplied. Furthermore, new sources of supply are likely to appear, and the question of an assured supply from possible

new suppliers will arise.

If, for any reason, there is a change in the source of supply, a decision must be made on the problem of whether to depend on one supplier, or on more than one, or on local suppliers for given items. Possible labor difficulties in one community as against another is

one factor in the decision. Another would be the firm's own organization, that is, whether it is centralized or decentralized.

Changes in sources of supplies may also be suggested by the possible use of substitutes or of simplified, standardized parts. Such possibilities will, at all events, have to be persistently explored. Shortages during the war and the early years following it led to the use of many substitutes, including even second-hand parts at the most critical stages of the emergency. The resourcefulness displayed then can no doubt be extended into the postwar

Quality of materials will, of course, always be considered in relation to the quality of the firm's product. But this does not preclude the likelihood that many substitutes, developed during the war for entirely different purposes, will find additional uses in producing items for which they were not originally intended. Some of these may even be superior to what was originally used. Purchasing officials will probbly learn of some of these materials for the first time in the postwar period. No doubt they should often actually be sought out.

These possibilities of new substitutes suggest the undesirability, as a general rule, of undertaking the manufacture of supplies for some time. There are, however, some additional reasons which indicate that such a policy of manu-

facture would be of somewhat doubtful merit for at least several years. In the realm of finance, for example, the manufacture of certain supplies or parts would very likely require the acquisition of capital for the purchase of machinery and equipment, and possibly plant. The cost of these in the immediate future is very likely to be greater than the long run returns would justify, so that their purchase on credit, or by bond issue, would result in a debt which cannot be liquidated from the returns derived. Of course, it is true that bonds issued at prevailing low interest rates might be bought back at less than par in the event of a rise in rates, which is a distinct possibility. But such speculation in interest rates is not a producing firm's function. Although the sale of additional stock is not so financially serious, there would be overcapitalization if capital equpiment is bought at an unjustifiably high price.

Manufacture also involves additional labor problems, including not only the difficulty of securing adequate productivity, but also the related problem of dealing with union organization. Of course, some employers always preferred to deal with organized labor, since a union is to a certain extent a convenient device for dealing with a large group. But with the assistance of government policy, as well as high levels of employment, the union leader's bargaining position has

n

e

e

d

d l-

y i-

G

temporarily become considerably greater than that of the employer. Although changes in government labor policy are to be expected, the results will take some time to be worked out in practice. The extent to which these results will be favorable for industry remains to be seen. In any event, it would certainly seem that undertaking the manufacture, rather than continuing to buy, supplies or parts would reflect unwarranted optimism.

To be sure, instances are likely to arise where there is a clear cut, unquestionable advantage in undertaking the manufacture of supplies. For instance, there may be a possibility of acquiring the plant of an existing supplier, or a plant which could be easily adapted to the production of the particular supplies in question. The desirability of acquiring such a plant would be particularly attractive if it is offered for sale at a very low price. An especially persuasive additional factor would be the possible specialized knowledge, on the part of some of the firm's managerial personnel, of methods of operating such a plant, perhaps even at a lower cost of production that was possible for the original management.

Problems in connection with the purchase of capital equipment for other purposes are somewhat similar to those arising when considering the question whether to manufacture certain supplies. Such capital equipment may, of course, be for replacement or expansion, rather than for the production of new items. Where replacement cannot be delayed, or where the question of expansion is involved, purchasing officials are likely to have less of a voice in the timing of the purchase.

Nevertheless, for some time the question of high costs deserves considerable attention. A favorable occasion for the acquisition of capital goods might present itself, however, in the course of a sharp, though short, decline in economic activity and prices.



### III. ECONOMIC FORESIGHT

T HE likelihood of a decline in economic activity cannot be readily dismissed. Many reports point in that direction. Among them are the reduction and cancellation of industrial purchases because prices are considered too high, the reduction of raw material inventories, the curtailment of orders by retailers, and the completion of large stocks of durable goods which are only awaiting relatively few scarce parts.

The important question is how long such a decline, coming within a few years after the cessation of hostilities, would last. Many appear to believe it likely that such a recession would be short in duration, and that it would be a typical primary postwar decline, to be succeeded by a number of years of relatively high levels of production and employment, with the level of prices somewhat above that before the war.

On the other hand, however, it is necessary to consider the factors

which might lead to a possible prolongation of such a recession. While the era of periodically declared emergencies has no doubt ended, it might be pointed out that resort to this device would contribute to uncertainty and tend to prolong a recession into a depression like that of the nineteen-thirties, which was "solved" only by war. A recession could also be prolonged by lengthy resistance to wage reductions on the part of labor.

In any event, the possibility of recession and the inevitability of some fluctuations in business activity suggest consideration of the problem of inventory policy. In general, there appears to be no reason, in the foreseeable future, for reversing the tendency to acquire only moderate inventories. It is certainly desirable to avoid the acquisition of inventories which later prove to have been bought at prices which were too high. In the event of a decline in economic activity and prices, the firm's own product, or products, will no doubt also suffer a price decline and the problem is to reduce costs to a point below the selling price of the product.

In a relatively short period of lower prices, the selling prices may be such that none of the fixed costs

are recovered. In any case, such costs cannot be reduced. Similarly, wage rates, even without prolonged and united effort to resist wage reductions, are relatively inflexible and lag behind reductions in other prices. These factors indicate the importance of being in a position to take advantage of reductions in raw material prices, with due regard to the added cost, in the form of discounts lost and freight charges, of buying in smaller lots. In general, the firm's problem is to synchronize, so far as it is possible to do so, the buying of materials with the selling of its product. Of course, in this process the purchasing official's responsibility extends only to the point of supplying the production official with materials.

In a period when prices are rising, however, some additional profits will accrue to a firm if it happens to have acquired extensive inventories at the lower prices. In fact, since the buying of raw materials and the sale of the final product can never be exactly synchronized, there is likely to be a tendency for most firms to derive some advantage in the form of inventory profits during such a period of rising prices. To adjust policy for the deliberate purpose of making inventory

profits, however, would in reality mean engaging in a type of business other than that intended by the firm, and in which it is not specialized.

Moderate inventory policies are also suggested by the possibility of discovering important substitutes, a matter which has already been discussed. A more important factor, however, lies in the relationship between inventory policy and marketing policy. After the passing of the period in which selling is relatively easy, maketing assumes

renewed importance and, in fact, is again required to justify its cost. Possible changes in marketing policy may be decided upon, and these possibilities also indicate the undesirability of very large inventories of many production items. For instance, questions are likely to arise concerning which products to emphasize, whether one or more should be dropped, whether new ones should be added.

Marketing problems of this sort are related to production, finance, and purchasing. So far as production is concerned, far reaching changes might raise problems concerning the suitability of existing plant, equipment, and layout, as well as even the labor force. Any need for additional, or different, capital equipment at once raises problems of finance. While the purchasing official is concerned with these matters, he must also be consulted on questions regarding the cost and availability of new types of materials which may be needed, and the disposal of the present inventory must be considered.



### IV. GOVERNMENTAL POLICIES

T HUS far, little attention has been given to government policy. As a matter of fact, business enterprise is likely to find itself, for some years at least, in a favorable domestic climate of official opinion. In general, therefore, purchasing policy may be based on the existence of relatively free markets. A given firm's buying policies must be decided on the basis of a thorough understanding of the arrangements for marketing the particular supplies which the firm re-

To what extent American tariff rates will be changed is not yet altogether clear. But decreases in given tariff rates may result in situations where buying supplies in foreign markets would appear to

be desirable.

quires.

Although this country's expressed policy looks toward freer international trade, other countries indicate little intention of abandoning government barter, quotas, and other restrictions on the flow of goods in international trade. State trading appears to command considerable confidence.

In the case of hides, for instance, one finds examples of embargoes on

exports, requirements of export licenses, encouragement of processed and manufactured goods in preference to the sale of the raw materials, and preclusive arrangements for disposing of crops to certain designated countries.

Another example of government policy in eliminating a free market concerns cotton. Thus, it has been reported that the British government is organizing a program of bulk cotton purchases which is said to have as its objective the furnishing of cotton to spinners at lower prices than would be expected from the operation of a free market. Hence, the Liverpool cotton futures market has been closed. One result of this may be to contribute to frequent sharp gyrations in cotton prices on American markets.

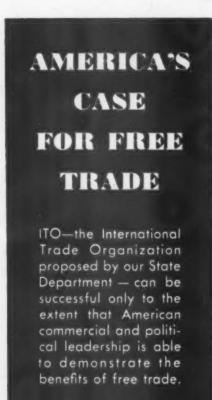
Examples could be multiplied. The important point is that price-stabilizing schemes are attractive to a good many people and must be reckoned with. When raw material prices collapse, many similar proposals will probably be forth-coming in the United States and some may be tried. In other words, even though no international agreement is reached on the proposal to adopt such policies on a world scale, it is to be expected that individual governments will engage in a wide variety of schemes to provide "stabilization".

Moreover, all sorts of programs designed to encourage particular industries and to discourage others are likely to be fostered by foreign governments. These are in large part related to the trend toward the socialization of industry, particularly in Europe. It is obvious that specially encouraged industries may be in a position to undersell more efficient producers of similar goods in other countries. It is also clear that a particularly favored industry may later, after it has elminated foreign competitors, charge higher prices until such time as competitors are again able to enter the field. Possible combinations of this sort are endless and may be left to the imagination, especially since it is impossible to forecast in advance exactly what the socialist politicians may be led to deem expedient at any given moment.

The ultimate significance of these trends, for the American economy as a whole, cannot be appraised as yet. However, the concrete developments in connection with these policies will have immediate reprecussions on those depending on foreign supplies, to say nothing of ex-

porters.

It is impossible to demonstrate, in terms of economic efficiency, the superiority of socialization, with the myriad devices and schemes which accompany it. In fact, it is far easier to demonstrate, both theoretically and practically, the superior efficiency of a competitive system. The very fact, however, that most of those who support socialization do not understand the accompanying complexities appears actually to add to their confidence in the programs presented.



NCLE SAM is still trying to sell the rest of the world on the benefits of free trade—or at least the type of trade relations which do not shut the door on individual buyers and sellers.

By A. N. Wecksler

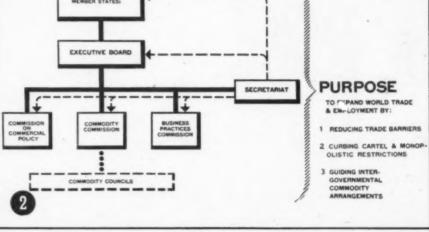
A 17-nation committee has been drafting a set of working rules for a proposed International Trade Organization, and the membership includes all major trading nations, with the important exception of the Soviet Union.

### The Soviet System

It is Russia that is the chief stumbling block to a full operation of free trade—for, in fact, in the Soviet, the comment is the sole importer and the sole exporter. Tariffs have no significance as they affect Russian trade.

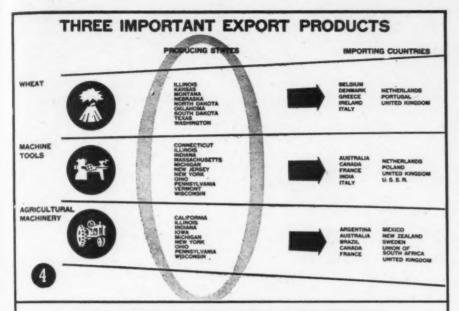
When the Soviet government chooses to sell, it can sell at any price it chooses to fix, irrespective of the actual cost of production. The only imports are of materials or goods which the government chooses to buy, and these are imported without duty.

# DEVELOPMENT OF U. S. FOREIGN ECONOMIC POLICY INTERNATIONAL ROOM AND ORGANIZATION ORGANIZATION ATLANTED STANDARD ORGANIZATION ORGANIZATION ATLANTED STANDARD ORGANIZATION ORGANIZATION ATLANTED STANDARD ORGANIZATION ORGANIZATION ORGANIZATION ORGANIZATION TRACE ORGANIZATION ORGANIZATION TRACE ORGANIZATION ORGANIZATION THE CONFERENCE COMPOSED INTERNATIONAL TRADE ORGANIZATION THE CONFERENCE COMPOSED OF ALL MEMBER STATES EXECUTIVE BOARD EXECUTIVE BOARD EXECUTIVE BOARD

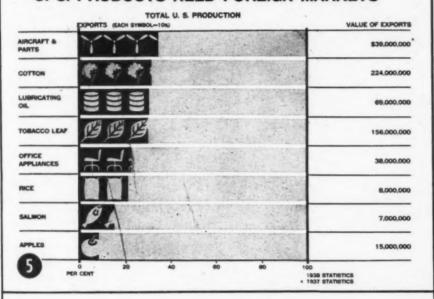


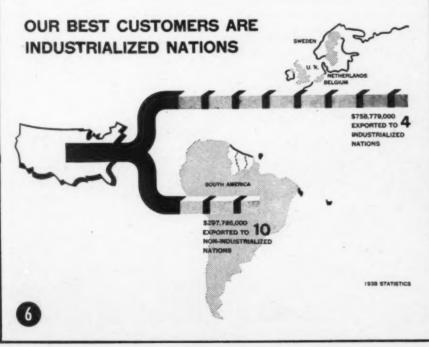
U. S. AUTO INDUSTRY DEPENDS ON FOREIGN TRADE

# FOREIGN MARKETS ARGENTINA AUSTRALIA BULGIUN B



# U. S. PRODUCTS NEED FOREIGN MARKETS





Such conditions make the traditional concepts of tariff concessions as a means of stimulating trade largely archaic as they affect trade with the Soviets. At the same time, the tariff and quota barriers are of immediate concern in stimulating trade among the nations outside the Russian orbit.

# Britain's Trade Position

While the Soviets are held up to be the major bugaboo in world trade relations, the position of British trade in the picture is somewhat tenuous. Britain is no longer in the same position as she was prior to the war. Her credits were liquidated Her trading position was weakened.

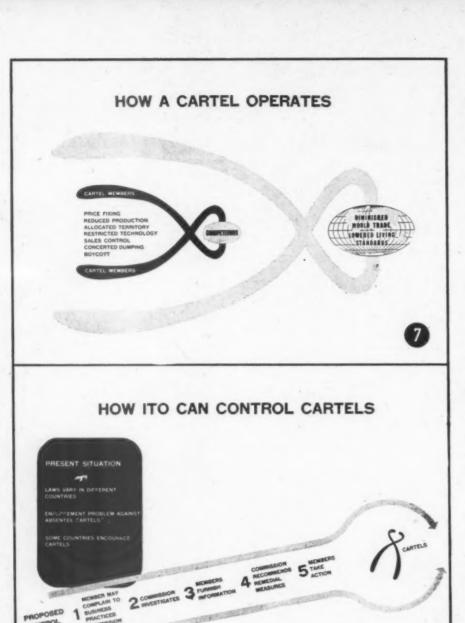
Simultaneously, Britain's need for export has increased in proportion to her diminishing strength—a strong force driving the British into a trading system that would permit her to monopolize specific trading areas which are either under the dominion of Britain, or strongly within the British orbit.

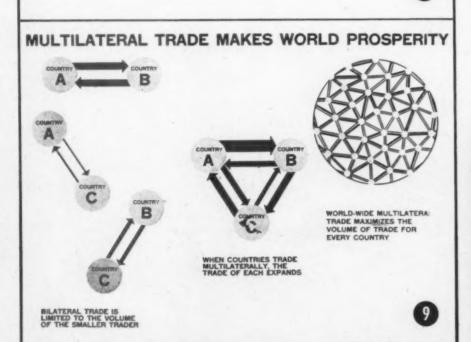
#### America Can Lead

It is generally assumed that the British will be willing to follow our lead in world trade—at least until such time as she can economically afford to strike out on another tangent.

Against this backdrop of conflicting interests, the United States is

Steps we have already taken
 What we propose
 Why we need foreign trade
 Who buys our goods
 How foreign outlets help production
 Who are our best customers





striking out strongly toward a world system that will give us a maximum of trade freedom. The biggest inducement is the large market in this country for raw materials and luxury goods manufactured abroad. Equally potent to some countries is the need in those countries for U. S. products, especially the tools and equipment needed by the foreign nations to build their own manufacturing industries.

# · America's Proposal

American proposals are incorporated in the charter for a world trade organization proposed by the State Department. Much of this charter was primarily designed to gain agreement from participating nations on the progressive reduction of restrictions which have been imposed on the free flow of trade.

There is general recognition that no country today is ready to accept "free trade" in an absolute sense. The problem is to determine the degree of controls which can be exercised by major nations over their trade, without slowing down trade and leaving a wake of world unemployment.

#### Trade Barriers

The State Department points out that barriers to trade take many forms. A transaction between a willing buyer in one country and a willing seller in another may be prevented because the tariff of the buyer's country creates an added cost too great to be borne; or because the paper-work required for export or import is so burdensome that the deal is not worth while; or because the seller cannot get an export license; or because the buyer cannot acquire the seller's currency

7. What is the alternative8. What we plan to do about it9. How the world will benefit

to make a payment; or because importation is restricted by the buyer's country to a quota which has been exhausted; or because it is forbidden altogether. Or the seller may discover that the tariff of the buyer's country discriminates against him in favor of sellers located elsewhere.

# Benefits for All

All these restrictions and the red tape connected with them have undoubtedly prevented many business transactions, cut down the total of world trade, and reduced to that extent the benefits which trade might bring to all the parties concerned.

In evaluating the effects of trade barriers, it can readily be seen that they affect different countries and different commodities in varying ways and degrees. These variations mold the position of the countries negotiating trade relations changes.

# A Dual Problem

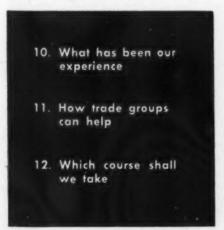
The State Department has a dual job in selling the U. S. concept of free trade. First of all, there is the job of selling the idea to the other nations who must participate if the program is to be effective.

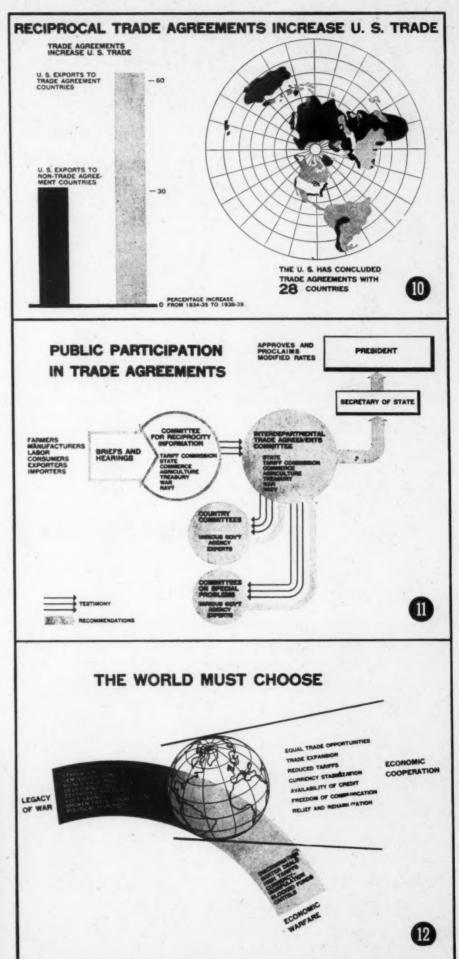
Secondly, and equally important, is the job of selling the concessions which we make, to the industries and individuals in this country who might be adversely affected.

might be adversely affected.

In seeking to sell its program of international agreement for free trade, the State Department has prepared a series of charts explaining the international trade organization and the need for free trade—also the consequences of continued restrictions on trade.

The charts embody America's case for free trade.







Everett A. Taylor Conference Committee Chairman

Purchasing Agent for Rhode Island, and National Director of the Rhode Island Association. Secretary of the committee was Harry J. Graham of Boston, Secretary of the New England Association. Treasurer was Arnot Hirst of the Providence Gas Company, Secretary of the Rhode Island Association. Others on the committee included the National Directors of the other associations in the District: William Horowitz of Botwinik Bros., Inc., New Ha-(Connecticut Association): Frank G. Kennedy of Simplex Wire & Cable Co., Cambridge (New England Association); and William R. Murray of Bigelow-Sanford Carpet Co., Thompsonville (Western Massachusetts Association).

An interesting and appropriate feature of the program arrangements was the participation of several men formerly active in District No. 9 who have now transferred their business activities to other sections of the country. Robert C. Kelley of Cleveland and Vincent de P. Goubeau of Camden, both former members of the New England As-

sented and the spirit of informal good fellowship prevailed.

The serious business of the Conference got under way on Thursday morning, with Robert C. Swanton of the Winchester Repeating Arms Co., New Haven, Past President of N.A.P.A., presiding over the opening session. Dr. Donald G. Wright, Pastor of the Mathewson Street Methodist Church, gave the invocation. John S. Dickson of the Crown Manufacturing Co., Pawtucket, and President of the Rhode Island Association, and Mayor Dennis J. Roberts welcomed the delegates to the city.

District Vice President Charles M. Healey, Jr., City Purchasing Agent at Springfield, Mass., spoke on "Affairs of District Nine", reporting healthy progress in all four of the local groups and bringing the members up to date on the deliberations of the District Council, which had met on the previous day.

Robert C. Kelley, Director of Purchases, Dresser Industries, Inc., Cleveland, Ohio, next addressed the meeting on "Purchasing and Sales

# NINTH DISTRICT CONFERENCE

THE first postwar conference of the purchasing agents of District No. 9 (New England), National Association of Purchasing Agents, was held at the Providence-Biltmore Hotel, Providence, R. I., November 20th and 21st. Prior to the war, this annual event had achieved notable success and popularity, but, like many another worth-while activity, it fell a casualty of travel restrictions and overloaded work schedules during the war years. The resumption of the series, under the leadership of District Vice President Charles M. Healey, Jr., met with an enthusiastic response, setting new high records for attendance, interest, and excellence of program.

lence of program.

Everett A. Taylor of the Providence Gas Company, immediate past Vice President of the District, served as general chairman of the Conference Committee. Vice chairman was Franklyn A. Adams, State

sociation while buying for the Converse Rubber Company and United Fruit Company respectively, addressed the Thursday morning session. Donald G. Clark of Pitts-burgh, formerly a member of the Rhode Island Association while serving as Purchasing Agent for the Brown & Sharpe Manufacturing Co., was unable to be present, but his paper was read at the Thursday afternoon session. F. Albert Hayes of New York, formerly of the New England Association while buying for the American Hide & Leather Company, was to have been a member of the panel of experts at the quiz forum, but was also forced to send regrets at the last moment.

# **Opening Session**

Early comers gathered in the Biltmore ballroom on Wednesday evening for a cocktail party and gettogether dinner, where an excellent program of entertainment was preRelationships, Past and Future". Following this, V. de P. Goubeau, General Purchasing Agent, Radio Corporation of America, Camden, N. J., discussed "Sound Inventories and Purchasing for Production". Both of these papers are reported in detail elsewhere in this issue.

# Value of Purchasing

After a recess for luncheon, the conference reconvened for a second business session. Charles L. Sheldon of the Hood Rubber Co., Watertown, Mass., Past President of N.A.P.A., was the presiding officer.

First speaker at this session was Stuart F. Heinritz, Editor of Purchasing Magazine, New York, whose topic was "The Cost and Value of a Purchasing Department". Taking his cue from management's approach to the problem—job evaluation based on a definition in terms of minimum require

ments of functional responsibility and personal qualifications - Mr. Heinritz drew a parallel between the search for value in respect to the purchase of materials and the operation of a purchasing department. The basic principles are the same in either case, differing only in their application: we must pay for what we get; we pay for many things whether we get them or not; it is frequently necessary to spend money in order to save money; first cost is less important than ultimate cost; non-productive items are essential and contribute largely to product cost.

Pointing out that performance which measures up only to the minimum requirements of a job definition is taken for granted and deserves no special commendation, he declared that the difference between a "burden" department and one which aids constructively in profitable operation lies in qualifications beyond the minimum and initiative to put those qualifications to work. He cited practical examples illustrating specifications, functional

sources were unable to make deliveries they found other means of meeting requirements. He suggested that this procedure was also a good pattern for purchasing in the competitive postwar market when better quality and lower costs are required in the things our companies have to sell.

Commodity valuations have lost much of their former significance, Mr. Scully declared. At the same time, the significance of value has been lost sight of in many purchasing departments, which are not sufficiently cost-conscious. We do not qualify as specialists or experts in procurement if our only answer to the question of cost is to quote the market price of a material and to plead that we have bought from the lowest bidder. The expert should know whether the specified material is the best and most economical for the purpose. Since the elements of cost or price are materials, methods, and overhead, a working knowledge of both materials and methods is prerequisite to effective cost control. Rather than waiting for an emergency, the development and application of such knowledge should be a conscious, conscientious, and continuous effort. It will show in better price performance as well as in deliveries.

Bernard J. Byrne, Purchasing Agent of the New England Butt Co., and a former Vice President of District No. 9, next read a paper prepared by Donald G. Clark, Director of Purchases, Gulf Oil Corporation, Pittsburgh, Past President of the Rhode Island Association and of N.A.P.A. The topic was: "Can We Measure Purchasing Efficiency?" Mr. Clark's paper is published elsewhere in this issue.

# **Questions and Answers**

Wyman S. Randall, Purchasing Agent of Rust Craft Publishers, Inc., Boston, now took the gavel to preside over an Information Forum dealing with a variety of purchasing questions propounded by those present. The panel of experts to whom these questions were directed in-cluded: Stephen J. Kennedy of Springfield Gas Light Company, Francis G. Martineau of Brown University, Executive Secretary George A. Renard of the N.A.P.A., Charles L. Sheldon of Hood Rubber Company, Robert C. Swanton of Winchester Repeating Arms Co., and Stuart F. Heinritz of PURCHAS-ING Magazine.

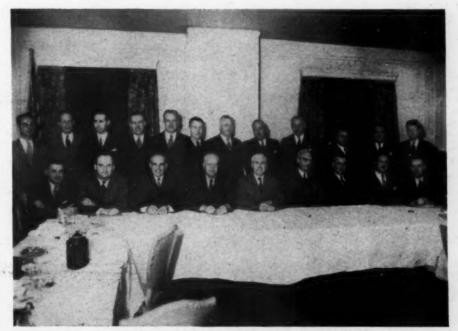
Several of the questions dealt with problems of the moment, such as the implications and probable course of the coal strike, which was

# **HELD AT PROVIDENCE**

procurement, materials research, knowledge of requirements, knowledge of sources, knowledge of methods, knowledge of costs, cooperation with other departments, participation in policy determination, and the like, which constitute the real value of the purchasing executive in his contribution to the common objective of company profits.

# Know-How Is Essential

E. P. Scully, Director of Purchases, Engineer & Research Corporation, Riverdale, Maryland, Past Vice President of District No. 8, spoke on "The Value of Practical Know-How in Purchasing". Mr. Scully recalled the experience of wartime buying, when availability was the first consideration and procurement was largely a matter of expediting. Under those conditions, buyers visited their suppliers more frequently, searched for substitute and alternative products, and when established



Officers of the four New England Associations at the District Council meeting held preceding the Conference

in its fourth day as the conference convened. On this point Mr. Renard warned that while some far-sighted and fore-handed buyers might be in a reasonably good position on coal supplies, their actual stock on hand must be measured in terms of the coal piles of their essential suppliers, whose production limitations would become the limitations of the customers depending on them for all sorts of materials and components. He counseled that serious consideration should be given to the advisability of immediate shutdowns rather than dragging out operations at an uncertain and uneconomical rate and using up inventories as was done during previous strike periods. The discussion then proceeded as follows:

Question: Will the paper situation improve, and if so, when? Answer (Sheldon): The situa-

Answer (Sheldon): The situation can hardly become worse, therefore we may look for improvement. However, any significant improvement is still several months in the future.

Question: At what level does it become economical to change from coal to oil as a fuel?

Answer (Swanton): The rule of thumb, considering the type of coal generally used in the New England area, is that 41/2 barrels of oil constitute the heating equivalent of a ton of coal. The cost comparison is made on that basis, considering the price of both fuels, plus other factors such as the characteristics of boilers, change-over cost, and relative handling costs. At present, the balance point is estimated at a \$9.72 per ton of coal. Since present cost (New England, November 21) is around \$8.35 per ton, the advantage is with coal. Of course, possible rising costs due to the strike and shortage of supply, or the complete unavailability of coal, would change this situation.

Question: At what point does the accepted normal policy of forward buying become speculative buying?

Answer (Heinritz): Forward buying is a legitimate policy to protect against anticipated price increases or probable shortages of supply, so long as there is reasonable expectation that goods will be needed and used. It becomes speculative buying when the need is speculative. Furthermore, any forward buying

is speculative if it overextends the financial resources of the company.

Question: Should the purchasing department be responsible for approval of vendors' invoices for payment?

Answer (Martineau): In general, ves, so far as the purchasing department is responsible for making the purchase. Where occasional purchases are made without purchasing department approval, or against the department's recommendations, the buyer should not be held responsible for certifying as to the propriety of the purchase and the accuracy of the invoice as a legitimate basis for payment. (Renard): The newspapers in recent weeks have widely publicized a case in which a man named Nickel ran a nickel into a million dollars at the expense of his company. This man was a cashier for a manufacturer of printing equipment. He was able to forge false invoices in the name of non-existent companies, certify them for pay-ment, issue and cash the checks, thus defrauding his company of enormous sums. Such dealings would presumably be detected by the annual audit, after the damage was

Banquet session at the New England Purchasing Conference



done, but this operation was carried out within one audit period. It argues strongly for a policy of approval by the purchasing department, which would detect the fraud at once by comparison with the purchasing record.

Question from floor: Does this company have a purchasing agent?

Answer (Renard): I have checked only to the extent of knowing that they have no purchasing agent with membership in the Association.

# **Purchasing Policies**

Question: What is a proper inventory policy under present conditions?

Answer (Renard): This question has been rather fully covered in Mr. Goubeau's address and other papers presented at the conference today. I would add just three thoughts: (1) that the policy should be selective rather than general, depending on the particular commodity concerned; (2) that purchase commitments be carefully considered and adjusted as well as actual inventories; and (3) that the great lesson of wartime procurement was scheduling, by which we learned that we

could operate satisfactorily on much smaller inventories than were pre-

viously thought necessary.

Question: To what extent should engineering depend on purchasing for finding sources of supply in the development stage of a product, when engineering is not sure of what is needed, when trial and error methods still prevail, and goods purchased may not actually be used or adopted as standard production materials?

Answer (Kennedy): The principle of teamwork and service applies here as in all purchasing. Some people will argue that purchasing should enter the picture only after decisions have been made and standards established. But purchasing may be able to help the engineer find the right materials and to make up his mind. Purchasing can contribute to sound product development through the buyer's knowledge of availability, commercial standards, competitive materials, and comparative costs.

Question: When will the present rising price cycle reach its peak?

Answer (Sheldon:) It is at the peak right now. Since decontrol of

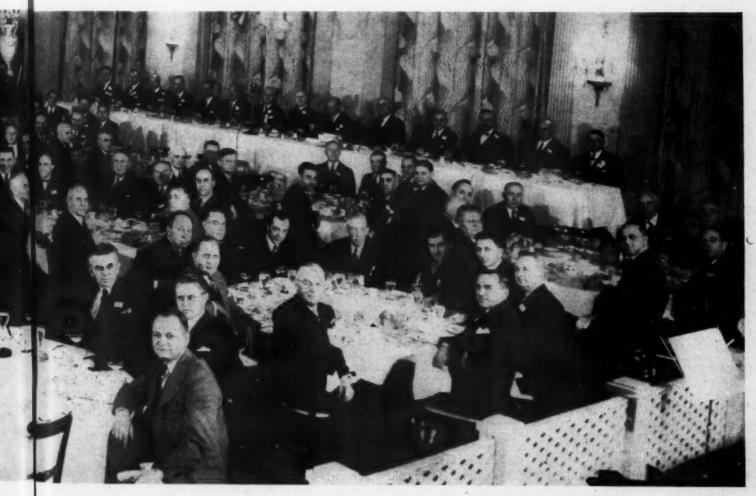
most materials, prices have advanced sharply, and while a part of these advances is probably justified, the general price policy seems to be to charge whatever the traffic will bear. Strong resistance has already been encountered, and all factors now point to price declines rather than further advances.

Question: Should the purchase of insurance be a responsibility of the purchasing agent?

Answer (Swanton): No. Insurance is a highly specialized and complicated subject, and should be handled by a qualified specialist in that field. (Randall): Sometimes, by reason of previous experience or training, the purchasing agent may be the most logical man.

Question: What is the best method of inventory control—by projects or by maximum-minimum quantities?

Answer (Martineau): Probably a combination of both methods is best. The objective of maintaining inventories is to have enough materials on hand when needed. For normal requirements, the maximum-minimum system indicates proper quantities and ordering points. The



JANUARY, 1947



Charles M. Healey, Jr. District Vice President

project system gives more specific information, that may sometimes be at variance with the average situation. It may therefore be useful in adjusting maximum and minimum quantity standards if necessary.

# Contract Questions

Question: What can the purchasing agent do to curtail the use of escalator clauses in contracts?

Answer (Renard): Be sure that price adjustment clauses work both ways, and define the basis of adjustment clearly and fairly to both parties. Don't sign "open end" clauses, which are equivalent to issuing a blank check. It might be well, also, to dust off your cancellation clauses and see that your company is protected in this direction. (Heinritz): Some equipment suppliers are eliminating the 20% maximum advance provision in their price adjustment clauses. Purchasing agents have made a counter proposal limiting price adjustment to 10% in either direction. They do not expect this proposal to be accepted, but they do expect to make it the basis for negotiation and a more reasonable clause.

Question: How should a contract be handled that calls for furnishing a company's total requirements of a given product, quantity to be not less than a certain figure in any case, and not more than another stated quantity except at the seller's op-

tion?

Answer (Sheldon): I have never seen such a contract, but I would certainly not sign one with these Requirements might provisions. change so that the buyer's needs are considerably in excess of the maximum quantity permitted, and there is no excuse for binding yourself to this sort of allocation in which the supplier has the entire power of decision. This answer assumes that suitable competitive or alternative products are available from other sources. Of course, if there is a monopolistic situation, and the product can be secured only from one source, there is nothing that the buyer can do about it.

Question: What is the most practical method of expressing comparative costs of operating a centralized purchasing department for a single plant—as a percentage of the sales dollar, or of the purchase dollar, or of the average purchase order? What unit of measure is most adaptable for determining the personnel requirements necessary to operate a purchasing department?

Answer (Heinritz): This question has been largely answered in Mr. Clark's paper read at this meeting. None of the suggested standards are acceptable from a mathematical or accounting basis, nor do they lend themselves to general application or comparison with other companies' costs. Their only significance is in comparing performance of one company in successive operating periods. As to personnel requirements, several studies have been made of actual conditions prevailing, but no pattern has been found indicating a fixed relationship between the size of department and size of the purchasing program. The practical answer to both questions is in a departmental budget based on intimate knowledge of the job to be done and what it takes to do the job.

## **Deliveries and Prices**

Question: In scheduling deliveries, should the purchase order specify the date on which goods are to be shipped by the supplier or the date on which they are to be delivered at the buyer's plant?

Answer (Martineau): The date of actual delivery is the important factor in procurement. If this is specified in the order, the supplier will necessarily make the shipment in time to meet the required delivery (Renard): That procedure seems to place on the supplier a responsibility for transportation that really belongs to the buyer, particularly in the case of purchases made f.o.b. the supplier's plant. In that case, the buyer has title to the goods as soon as they are shipped and they are clearly the responsibility of the buyer while in transit. Specify the date of shipment, allowing reasonable time for delivery to meet your needs; then see that shipment is made and delivery expedited.

Question: During the war we de-

pended heavily on the service of expediters. Are they of similar

value under present conditions?

Answer (Sheldon): We can't live without them. The need for active and competent expediting is today as great as ever.

Question: How far in advance of actual need should deliveries be

asked?

Answer (Swanton): That depends entirely on the commodity involved. Deliveries are better on some materials, but there are still a lot of products on which a liberal margin of safety is necessary. What

Question from the floor:

about magnet wire?

Answer (Renard): That is one of the items on which necessary lead time is longest under present conditions. Orders are being placed as far as two years ahead.

Question: What action can be

taken against rising prices?

Answer (Renard): The most constructive answer to that is suggested in Mr. Scully's paper. use of replacement materials of lower ultimate cost is one way of cost control. This demands a knowledge of materials and design and methods in the company's own plants and those of suppliers. At Ford Motor Company they report a saving of a million dollars a year by making the crankshaft with two slots for the handle instead of the traditional four, with no sacrifice of utility. Similar analysis and revision of material and design specifications may be found practicable on many products with resultant savings in cost.

# **Banquet Session**

The banquet session on Thursday evening was preceded by a cocktail hour in the ballroom foyer. Everett A. Taylor presided at the banquet. He introduced the guests of honor at the speakers' table, including the conference speakers, past national presidents Sheldon and Swanton, District Vice President Healey, and the presidents of the four Associations in District No. 9: John S. Dickson of Pawtucket (Rhode Island Association); R. W. Fleury of A. G. Spalding & Bros., Chicopee (Western Massachusetts Association); Lloyd A. Lowe of C. H. Sprague & Son Company, Boston (New England Association); and William J. Roemer of The Bristol Company, Waterbury (Connecticut Association).

Thomas J. Meehan, Director of the Department of Business Regulation, State of Rhode Island, repre-(Continued on page 294)

# PURCHASING FOR PRODUCTION

What constitutes a sound inventory position and policy under present business conditions?

By Vincent de P. Goubeau General Purchasing Agent, Radio Corporation of America RCA Victor Division, Camden, N. J.

BUYING, regardless of the purpose intended, is essentially similar, whether it be the housewife's purchase of butter and eggs for the table; the purchase of carpets and linens for resale in a department store; or the purchase of locomotives for use on a railroad. The art of acquiring materials to be used in the manufacture of a finished product, however, differs considerably in detail and significance. For example, it is perfectly logical to make periodic purchases of maintenance items on the basis of past usage as indicated by stockroom records. A similar practice for production items may not only result in dis-located inventories, but may also cause disrupted production because the past usage of an item may not represent future production needs. Therefore, to adequately buy for manufacturing purposes, one must relate requirements to forward production based on expected sales. When a forward program is known and is transmitted in the form of bills of material to the purchasing department, facts are then available concerning the manufacturer's needs to support future production lines.

The purchase, handling and controlling of these materials comprise a very important function in a company's life, and to my mind, carry equal importance with other operations such as sales, engineering and manufacturing. I believe that Industry in the past has not been aware of the importance of this balance to a manufacturing business. Great stress was laid on sales, on the theory that if customer orders were received the rest would be simple.

Perhaps the procurement job was performed so efficiently that it was accepted as a matter of course. In normal times, your supplier found it possible to render the type of service which assured you of uninterrupted production. Materials were delivered promptly and the quality

was satisfactory. You did not have to route shipments by air express and weren't confused as to the price you would be charged for the goods when they arrived. The situation has been very different since V--J Day. Industrialists have received quite an indoctrination in purchasing, and are now well aware of its importance.

# You and Your Supplier

Vendor relationships for the procuring of items which go into the manufacture of your products are equally important with sales, and, during these trying times, perhaps more important. If the materials you procure are an important part of your business life-line, it naturally follows that your approach in handling the purchase of those items should be on the basis of mutual confidence and mutual understandings with well qualified producers.

The practice of sending out inquiries requesting prices for a certain quantity of materials or parts and awarding the order to the lowest bidder is not sufficient for the assurance of the loyalty and understanding which are necessary for this type of business; but if you sit down with a logical source of supply and explain your production plans, indicating your expectations with regard to quantities, deliveries, and other important features, you are then establishing a pipe-line to your own production line. Your supplier understands your problem, you understand him, and if he is a factor in his own industry, I am sure he will keep you competitive, efficient, and up to date on the latest developments.

That is my idea of proper purchasing for production. I like to think of an important source of supply as being in the same category as a subsidiary company in your own organization. I also believe in a close relationship along research and development lines for the mutual benefit of buyer and seller. Discussions con-

cerning the practical applications of new methods and products can be of tremendous assistance.

# No Master Minds

One of the immediate problems in handling your procurement on this basis is the matter of acquiring these items at the times needed for fabrication or assembly. That introduces the question of proper material control. No one function in a manufacturing business can be adequately performed without dependence on, and coordination with, other phases of the process. That is why at the outset I mentioned the importance of basing production plans on sales forecasts or orders. Further than that, expected production schedules must be realistic; they must not be based on wishful think-

The material control department should plan with the purchasing people for proper scheduling of deliveries which will be adequate to keep production lines supplied with

Address at the Conference of New England Purchasing Agents, District No. 9, N.A.P.A., Providence, R. I., November 21, 1946.



Vincent de P. Goubeau

necessary materials for fabrication or assembly. No one phase can operate independently, and sometimes it is difficult to convince material control people that they should not master-mind buying problems, but should be continually abreast of the situation through close contact with the purchasing department. In some companies, the Director of Purchases supervises the material control function. Regardless of the organizational structure, it is most important that the material and inventory control people so requisition requirements on the purchasing department as to permit of proper acquisition of materials in time to meet the needs of manufacture.

Of course, you should have sufficient materials in stock to permit of an uninterrupted flow of materials to the production lines while awating receipt of scheduled materials to augment that inventory. But how does one accomplish this very necessary objective under present conditions? The failure to provide an adequate answer to that question is the bane of Industry's

existence today.

What is a sound inventory position today? As a matter of fact, we might ask the additional question: Who can guarantee a delivery date today? That is a serious question which we are all facing but which we hope is a temporary situation. I might also ask right here: What is a temporary situation? I recently talked with a gentleman who is President of his company and has been in that spot for about twentyfive years, after having advanced in successive steps from a job as errand boy when he joined the organization as a small lad. Recalling that in those days it was the practice to hire a new employee on a trial basis, my friend concluded with the statement that "It begins to look as though my job is permanent."

# Too Many Left Shoes

We have had the frustrating experience of "reconversionitis" about a year and a quarter, which is far longer than any of us expected, so just how long this temporary situation will last before we come to a permanently stabilized economy is anybody's guess. My comments, in general, naturally refer to operations under normal conditions.

The country today is faced with "shoe trouble." Everyone talks about having too many left shoes and being very shy of right ones. My company's position is no different in this respect than others. So many people are asking why it is taking so long to get the things they have been waiting for. All during the war, people did without washing machines, refrigerators, radios, and what have you, and it is hard to understand the delay unless, you happen to be a purchasing agent.

I fear that one of these days our people will be so accustomed to routing shipments via air express that the commonly used rail or truck movements will be ignored or forgotten. Using such extravagant approaches to acquiring materials as obtaining steel in California in order to use it in New Jersey, pur-chasing lumber in foreign countries, expensive and elaborate expediting, bartering one commodity for another, are all part of almost routine performance made necessary by present-day difficulties, and yet our production lines cannot be supported adequately and the market still awaits our products.

# Schedules and Strikes

After V-J Day, our people assembled drawings and went to work in the direction of preparing for our peace-time production. It was our expectation to be able to sell, at least in reasonable volume, our first line of consumer merchandise by the late fall of last year or shortly after the turn of 1946. It was not very long before we arrived at the unhappy realization that materials were so tight in supply that our schedules were obsolete before they were well started. We reviewed our plans and cut back our program to what then seemed a more realistic basis, but we found we were still not out of the woods.

Quality problems began arising as a good many of our suppliers found it necessary to train new, inexperienced help, resulting in unsatisfactory products. We found ourselves rejecting a good many shipments of vitally needed parts. Later on, we felt somewhat encouraged, having successfully avoided any labor difficulties of our own, and were hoping for a steady flow of materials. But our hopes were suddenly dimmed when we found ourselves confronted with strikes in important copper mines and in brass and copper mills. How to obtain copper wire, was the question. We began the practice of what has become the popular pastime of the day, that of bartering one type of material for another, swapping scrap for usable copper, and so on. First, we would exchange copper scrap for bar copper. Then we would swap the bar copper for wire rod. Finally, the wire rod would be turned over to a drawing manufacturer, who would draw it down to the sizes of wire we needed.

In a minor degree, we had the same experience with steel. As you know, critical shortage of sheet and

It is perfectly logical to make periodic purchases of maintenance items on the basis of past usage as indicated by stockroom records



strip existed well before the steel strikes and, unfortunately, that situation has continued.

When the steel strikes were settled, we felt quite relieved, but our enthusiasm was quickly dampened by the announcement of the coal strike. Our only consolation on the receipt of this news was that a substantial shipment of coal had recently arrived and was, at the moment, located on the other side of the river from our plant in Cam-den, New Jersey. However, that bright spot was quickly dimmed when we realized the tug-boat strike then in existence would prevent us from having the coal lightered to our yards in Camden. Fortunately, we were able to arrange for other transportation and thus kept the plant from closing.

# For Want of a Nail......

Production of some vital machinery used by us in the manufacture of Victor records was held up because of the steel strike and was later further delayed by a strike in the vendor's own plant. The delay has been so costly to us that we suggested to the manufacturer of this machinery that he work overtime until completion of the order. To do so would not help, he informed us, because he could not obtain motors in time, and even if he could obtain motors, a strike in a mid-western plant would prevent delivery of motor drives, so then the equipment could not be completed anyway.

In the face of that kind of experience, how can one control materials? After extensive conferences endeavoring to line up some kind of reasonable plans, involving status of inventories and latest delivery promises of our suppliers, we would suddenly find that some minor item was disrupting our picture. Yes, even on one occasion we found production was delayed because we could not obtain nails. It is pretty discouraging to be grappling with inventories totaling many millions of dollars to find out that you can't produce "for want of a nail", as the saying goes.

Perhaps the general perspective was wrong at V-J Day. We may not have thoroughly considered which was the more difficult—stopping the highly geared wheels of war production, or starting the peace-time activities to take the place of the war-time job. Certainly it wasn't realized that scarcity of materials and industrial strikes across the length and breadth of the land would so disorganize Industry as to create

further scarcities when important shortages already existed.

# Proceed With Caution

If one were to weigh inventories only in the light of the difficulties touched upon above, there would be a tendency to disregard sound inventory practices and permit uncontrolled or, at least, "hopeful" buying. As a matter of fact recent inventory statistics and corporate financing news might indicate that inventory control already has bowed to the immediate exigencies of procurement in more than one instance.

In recent months, our zeal for production has fostered an assumption that if one item cannot be made because of limiting items, another can. But the danger here lies in the fact that the unlimiting items of the first product have been accumulated and lie sterile in the stockrooms awaiting limiting items which are on order. And when this situation is aggravated by the fact that the second product encounters the same difficulties as does a third or a fourth, we are creating an unsound inventory picture. One alternative under such circumstances is simply to shut up shop and go out of business until everything is back to a so-called normal status. But, of course, there are other alternatives not so defeatist as that. One is to proceed-but to proceed with caution.

I think it is time that inventory accumulations be viewed in a very cold light to insure that we do not let our better judgment be overcome too much by procurement difficulties, be they real or exaggerated. The ultimate consumer already is expressing a rejection of the "take it or leave it" sales policy of the war years. Again he or she is shopping, so that large inventories represent more of a risk to their owner than just over-investment. Such a consumer attitude only accentuates the importance of a like attitude by the producer.

# Factual Forecasts

One of the first factors to review is the sales forecast. I am sure you are all aware of the pyramided customers' orders which are responsible for over-optimistic sales plans. By this I do not mean to imply that there is not a great and profitable market potentiality. But on the other hand, it would appear wise to consider that there has been a tremendous expansion in productive facilities in this country, and the question of whether

there is a market to justify large sales increases by everybody in the face of such expansion is worthy of study. Just how firm is the demand for goods comprising the loads placed upon our plants.

Secondly, for the many reasons with which we are all too familiar, production cycles are not what they used to be, which may result in missing seasonal markets. This problem is rendered even more acute by the fact that labor output per individual is distinctly less than it was pre-war. So delivery schedules must be analyzed in the light of realistic production scheduled. Is it really "in the wood" for these plants to produce the goods as scheduled even if there were full materials support?

A third factor, having its origin in the first two, is price. It doesn't require any economist to predict that lower prices are not too distant. But when?

Of course, these questions cannot be answered specifically, but the need for the answer should be constantly in our minds in future plannings. Therefore, there is a definite necessity for the sales, manufacturing and procurement functions of a business to formulate a realistic policy consistent with a practical sales forecast, actual productive potential and economical procurement. In short, it seems to me that despite the difficulties of procurement, the need for application of sound inventory policies is even greater than in normal times.

We hope that we have seen the worst of our troubles, and that supply of materials will again be coming into balance, when we can return to fundamentals by operating our businesses with a sound inventory and a reasonable buying policy based on delivery schedules a supplier can meet and quantities which will be adequate for our production but which will not create stock-piles.

# Price Hazards Ahead

It would be untimely to pass from this subject without a word or two about prices. It is hard to distinguish, at times, between foresight and chance. It is part of a purchasing agent's training to know the trend of markets and to do some prognosticating as to prices and availability of supply. With the sudden removal of price controls, it was to be expected that markets would at least temporarily be upset, and that serious price fluctuations would occur before conditions settled down to a reasonably normal basis. One needs foresight badly during these

critical times in weighing the problem of when and how much to buy on the one hand while appreciating the cost of delayed or interrupted

production on the other

History shows that Industry has progressed through the use of sound judgment and good perspective in the placing on the market of quality goods at reasonable prices which would return a fair profit and warrant continued production. Success cannot be achieved by pricing oneself out of business. One would literally have to emulate the ostrich in order to avoid hearing present-day comments concerning buyers' strikes, business recessions, stock

market losses, and so on. Perhaps it will all settle down after a while and we will be in for a considerable period of good, substantial business. The best way to accomplish this, in my opinion, is to avoid gambling on markets and building up of inventories needlessly in order to avoid new price increases. It won't take very long for the avaricious merchant or manufacturer to realize that taking advantage of supply conditions will not lead him to improved business in the long run. Radical price increases will shut off markets and then commodity prices will come tumbling down. that happens, and it may not be far off, God help the fellow with a tremendously heavy inventory.

If at any time sound judgment and the avoidance of rush impulses were necessary, that time is now. That type of advice is as timely now as at any period, and the purchasing agents of this country can make a tremendous contribution to American Industry by keeping both feet on the ground and influencing their Management to avoid the practice of grabbing for big profits for a short period at the expense of good, sound business for the long pull. Don't inventory yourself out of business and don't get yourself out on a limb by extended commitments at artificial prices.

# CAN WE MEASURE PURCHASING EFFICIENCY?

A new approach to an old question, based on the techniques developed in management engineering — evaluation must be done by auditors from outside the department, at carefully selected check points, rather than by means of a self-applied formula

By Donald G. Clark
 Director of Purchases, Gulf Oil Corporation, Pittsburgh, Penns.

FIFTEEN years ago, I knew the answer to the question which constitutes the topic of this paper. I was not only certain that we could measure purchasing efficiency but I was brash enough to outline a mathematical formula which took the form of a master cost sheet on which the various factors which enter into purchasing efficiency were measured in percentage figures. As a result I was prepared to suggest that any purchasing department's efficiency could be measured accurately in an all-combining percentage figure, and the efficiency of the purchasing department could be set at 97.41% or 88.14%, or some such absolute figure.

In fifteen years, it is possible to learn a lot and correspondingly to unlearn a lot. I don't know which way to express what has happened to me. I have either learned enough to

know that it is impossible to measure purchasing efficiency by any purely mathematical formula or possibly I have unlearned some of the things about which I was so sure fifteen years ago. At any rate, today I am sold on the proposition that purchasing efficiency can be measured, but I no longer believe it is possible to do the measuring by a mathematical formula or to establish any absolute yardstick for measuring purchasing efficiency.

Incidentally, I have also abandoned the idea that it is possible to measure comparatively so that the purchasing department in one industry or in one company can be compared with accuracy with the purchasing department in another industry or even in another company.

# No Absolute Yardstick

The trouble with the yardstick idea is that sometimes the yardstick has

to be 42 inches long and sometimes it cannot be more than 12 inches long. Circumstances between companies vary so much that what is efficient under one set of circumstances is not necessarily efficient under another set.

The result is that, today, I am starting to think afresh about the problem of measuring purchasing efficiency and my thinking is taking the direction of starting with a few check points, with regard to each of which some determination can be made as to the efficiency or the lack of efficiency of the purchasing department. That is about as far as I have gone in my thinking up to this

Paper presented at the Conference of New England Purchasing Agents, District No. 9, N.A.P.A., Providence, R. I., November 21, 1946. The paper was read, in Mr. Clark's absence, by Bernard G. Byrne, Purchasing Agent of the New England Butt Company and a former Vice President of N.A.P.A.

time. Whether or not it is going to be possible to set values on the various check points and establish percentages of efficiency in the several different fields is something that yet remains to be worked out.

I still stand, however, by the proposition that purchasing efficiency can be measured, not necessarily absolutely, not necessarily mathematically, not necessarily comparatively. It can nevertheless be measured, and the measurement can be made in such terms that the establishment of objectives or standards can be of assistance to the open minded purchasing agent and—what is far more important — to the executives to whom purchasing departments report.

# Six Check Points

In this paper, therefore, it is my intention to outline six check points as to purchasing department efficiency. These are offered with no suggestion that they in themselves comprise the entirety of the yard-stick. I think, however, they do constitute a starting point for thinking through to a method of evaluation. And even if we do not arrive at any mathematical expression of efficiency, we may develop something worth presenting to purchasing agents and management as a means of gauging the efficiency of a purchasing department.

Without further introduction, here are six points for checking:

## 1. Personal Ability

The first point is an evaluation of the characteristics, ability and organizing skill of the head of the purchasing department. Obviously, this is a matter of opinion. Equally obviously, the opinion of the purchasing agent about his own characteristics has no particular value. The management engineer, however, or the auditor or an executive of the company, is capable of estimating the qualifications of the head of the purchasing department.

Under this heading would come opinions as to the integrity, the intellectual ability, the skill in organizing a department, and any other characteristics of the purchasing agent which bear upon his value to the company and his ability to serve the company. May I simply add that in the opinion of a management engineer with whom I talked, this is the first and most important step in testing the efficiency of a purchasing department because, in his opinion, the entire matter of efficiency revolves around the personal-

ity of the head of the department.

# 2. Stated Policy

The next point for checking is whether or not the purchasing department has a broad statement of policy, which should be written rather than verbal, and which may be considered an essential to the truly efficient department. Of course there are two subordinate questions after the question of whether such a statement of policy exists has been answered. Is the statement of policy a good statement, and is it lived up to in the practice of the purchasing department? We have such a statement of policy in the Gulf organization, which we call "Standard Instructions for the Personnel engaged in Purchasing for the Gulf Companies." I do not even pretend that these are the best statements of such policies, but the very fact of having issued such standard instructions has proved valuable to us in our purchasing organization.

# 3. Standard Procedure

The third check point is whether or not the purchasing department has a standard manual of procedure, which should also be in written form. Again we must remember the mere fact that there is a manual only leads to a discussion of whether the manual is correct and helpful and the best possible manual, and secondarily, whether it is lived up to. Again the emphasis is upon the fact that such a manual of procedure establishes uniformity of practice and the certainty as to the varying duties of the various members of the purchasing department which seem to make it an essential point in how efficient the purchasing department is.

# 4. Procurement Service

The next point deals with the performance of the purchasing department in matters of service, including delivery of material in the quality and at the time when it is needed. This would seem to be a matter to be decided by the opinion of the Manufacturing and Production executives who deal with and depend upon the purchasing department for materials and supplies. Obviously such opinions may vary as between different executives, but it should be possible to establish with some degree of certainty whether or not the purchasing department is efficient in the performance of its duty, which is, as stated above, the delivery of the proper quality and quantity of goods on necessary time schedule.



Donald G. Clark

## 5. Cost of Materials

The price paid by the purchasing department certainly enters into the determination of whether it is an efficient procurement organization. Whether the price paid should be measured against some standard price or should be compared with prices paid by other comparable companies is a matter that will vary with the procedure of each company as to standard prices, etc. It is suggested that this matter of checking how well a purchasing department buys from a price standpoint may be established by spot-checking the more substantial purchases made and it might be an interminable and costly calculation if the price of everything bought had to be taken into account.

Certainly this is another point where the opinion of the purchasing agent should not be taken as determining how good a buyer he is. Spot checks and audits of purchasing transactions can be made regularly and are made regularly in many organizations. In such audits, the method of inquiry and the choice of the supplier are checked from perfectly tangible evidence and can be made the basis of opinion as to whether or not the purchasing department buys at the right price. What is the right price is another question, and I am only confident of this one fact: that the efficiency of the purchasing department does not depend on its buying of bargains but rather on securing the price which is proper in view of the volume of its purchases and its position in the industry.

# SEVEN POINTS

# at which the efficiency of a purchasing organization may be checked

- 1. The personal qualifications, ability and organizing skill of the department head.
- 2. The basic policy governing procurement operations.
- 3. The standard procedure observed in purchasing practice.
- 4. The performance of the department in maintaining an adequate flow of proper materials to support the manufacturing schedule.
- 5. The performance of the department in respect to the cost of purchased materials.
- 6. The cost of administering the department, in relation to the work performed.
- 7. The extent to which the department contributes to or detracts from company

# 6. Cost of Administration

The final point hinges on the question of how much it costs the purchasing department to operate. presume that in most large companies at least, a budget for the operation of the purchasing department is laid out each year, and the purchasing department is either criticized for failing to live within its budget or the budget is revised to meet changing conditions. I am not open to the suggestion that the budget constitutes an exact measurement so that the purchasing department that lives within its budget within the cent is 100% efficient in this respect, while the department that runs over its budget is inefficient, or the department that operates on less than its budget is superefficient. I am much more inclined to recognize the value that comes in expressing the operating cost of a department in terms of what it costs to place an order, or preferably what it costs to spend a dollar in purchasing. Any determination, however, is a measurement of a perfectly tangible thing, provided the proper allowances are made for changing conditions and for volume of work.

The above constitutes a very hasty summary of six possible check points. I am not by any means convinced that they are the six points, or that they are all the points worth checking. If these six points, or some ten or dozen points including these six or some of them, can be used as a starting point, I think we could have the basis of beginning the measuring of purchasing efficiency.

# Intangible Factors

As has already been noted, many of these points are an attempt to measure something intangible, while only on the last two points we approach a measurement which is tangible and which can be expressed in mathematical terms. The mere fact that something is intangible does not mean that it cannot be measured, although it may not be possible to apply an arbitrary mathematical

vardstick to it.

For example, let us take the first point as listed above. In evaluating the personality and characteristics of the head of the purchasing department, anyone would have to consider such factors as integrity, personality, shrewdness, organizing ability, discipline, and a dozen other To attempt to measure such characteristics involves complications, but this very sort of thing is done by personnel managers. While the result is not always 100% correct, there is no doubt that the valuation means something and may be used as a guide to selection of personnel. If different characteristics of the purchasing man are to carry different weights, those weights may vary between different companies. The result, however, companies. The result, however, ought to be, for any particular company, an evaluation which is helpful to the executives. The mere fact that it is a complicated problem does not mean to me that it is incapable of solution.

# Good Will

There is an additional point which seems to me to be important which is not included in the six I have outlined above. That is the question of to what extent the purchasing department creates or dissipates good will for its company. That particular attribute of the purchasing department has been measured in individual cases, usually by statistics of reciprocal business obtained. I suggest in passing that this is not the final standard by which to measure the goodwill aspects of a purchasing department, nor is it by test an accurate measurement in any sense.

# Not an Arbitrary Basis

I hope that you will sense that I am not attempting to set any arbitrary measuring stick, but merely attempting to establish a starting point for thinking through the problem which will take the best effort of all of us to work out even a tolerable solu-

To restate my position briefly, it is my opinion now that any start whatever to measure purchasing efficiency must be made by the adoption of some number of check points like those which I have suggested, and then must proceed to evaluate the importance of those points which may be checked, as well as to establish a method for checking them. If these steps can be taken (and I am sure they can) the result will be a method by which a reasonable degree of certainty as to the efficiency of the purchasing department can be established. And regardless of whether or not we can arrive at any mathematical result, we shall have something that every purchasing agent will find of value to himself in checking his own efficiency and that of his department.

## Value of Analysis

In addition, I shall hope that we can arrive at something which management can adopt as a means of valuing the purchasing departments which it controls and the service which these departments render, and the profits or losses for which these departments are responsible.

The outcome will never be, I am sure, the ability to take two purchasing departments and rate one as 98.44% efficient while the other is only 86.11% efficient. This, however, is not the goal of our endeavor.

My present message is that every purchasing agent should use his best efforts in thinking along these lines and thereby arrive at some conception of whether his own purchasing department, under his own set of circumstances, is efficient or inefficient. I am always confounded when thinking along these lines with the thought that perhaps some purchasing men might not appreciate the establishment of any plan for valuing their efficiency, but that is a matter for each one to decide for himself.



We are not going back to the old ways of doing business in the postwar era

By Robert C. Kelley

Director of Purchases
Dresser Industries, Cleveland

# **PURCHASING AND SALES RELATIONSHIPS**

# . . . Past and Future

ONLY a few weeks ago I visited one of the largest steel companies and the Vice President in Charge of Purchases told me that in all of his 35 years of purchasing experience he had never seen the going so rough. The Sales Manager of the same concern was unhappy too. He told me that he had no satisfied customers.

Even the most routine matters seem to thwart us. In talking to one of my buyers the other day, he showed me a simple garden variety of maintenance requisition for 15 items of malleable iron pipe fittings which in ordinary time he would send to any reputable distributor or jobbing house in any one of our large cities and get it filled complete without any fuss or bother. Today the first supplier you send it to can fill a small part of one item, you have to shop the town to get it filled. You might end up with 15 different purchase orders for the one requisition and the Lord knows how many telephone calls, inquiries, and letters just to find the stuff.

Today the salesmen, what few of them are left, stay home. The Purchasing Agents take to the road. In a recent visit to Pittsburgh to one of the steel companies, three delegation of five or six men each were waiting to see one of the product managers. Presidents, Vice Presidents, members of Boards of Directors, are all mixed up in procurement today. Every cocktail bar in the country hums with conversation about Industry's No. 1 Problem—getting materials.

Trade has been forced into channels where economically it does not belong. In the old days we used to pride ourselves that we could always keep the production lines going. If the regular source fell down on delivery due to a strike or disaster, we always had a few aces up the sleeve -emergency sources - where we could turn for supplies even at slightly higher cost, but today the deuces and treys are wild, and aces are no longer winning cards. We have a new species of procurement expert, the materials broker who is capitalizing on this emergency. Very often there is nothing back of him but a bankroll. He operates as a surplus material trader, picking up materials and peddling them out at black market prices by various and sundry devices, such as the finder's fee.

## The Good Old Days

Now let us analyze the purchasing and selling policies of the past, as we knew them in the 20's and the 30's. (There are no purchasing or

sales policies at present, at least none which have any stability or semblance of permanency.)

Sources of supply were carefully selected, well-sold, and every effort was made to anticipate needs. The relationships were very close, the buyer visited the seller's plant, saw his materials being manufactured, and made every effort to time his procurement so that the peaks and valleys of production would be leveled out, and specifications were developed which did not unduly penalize the producer. The seller also went beyond the point of delivery of his material to the customer's door and became interested in its performance on the production line and in the finished product.

Inventories were often carried by the supplier and delivery service synchronized with the production line, with the cooperation of the carrier. In fact in many industries, such as the automotive, the storeroom was eliminated on many items and incoming shipments moved directly to the conveyors.

Technical developments and improvements were fostered, quality was of prime importance, and purchases were made on a value basis,

Address at the New England Conference of Purchasing Agents, District No. 9, N.A.P.A., Providence, R. I., November 21, 1946. the value being a combination of quality, service and price.

Profits were made on both sides. The buyer profited by having a dependable source of supply, quality material at an equitable price which could be manufactured into a product and sold at a profit. The seller made a profit too, otherwise it was not an equitable transaction; and in the long run the business relationship was not sound unless both profited. There were exceptions to this, of course, during the depression when neither the buyer nor seller profited. It has been my experience that when prices go too low due to a business depression, the end product was depressed too and the volume dropped to a point that no matter how cheap you bought the material, the entire operation was unprofitable.

# Stability of Supply

Sources were pretty well established in those days and while it was not policy in general to confine purchases of major character to one source, changes in sources by the addition of new ones or the dropping of old ones were made infrequently and then only for very sound reasons, such as poor quality, poor delivery, or increased demands.

A new supplier had a hard time to break in and often his only weapon was a cut price. Even this failed more often than it succeeded, as the established supplier would make concessions to keep the account. This left the new supplier with only the marginal accounts, the poor credit risks, or unstable producers, as the most desirable customers were pretty well sewed up.

Trade barriers were frequently set up, particularly at distributors or jobbers level where it was not considered ethical or possible to handle two competing lines. A buyer had to weigh his choice and choose well. Many of these relationships still exist in the retail field where a certain premium line of advertised merchandise is only sold through one outlet in a certain area.

This pretty well summarizes the purchasing and sales relationships of the past. It was an orderly, methodical age. The Purchasing Agent had time to think, time to plan, time to develop new sources, time to try out new materials, foster and cement closer buyer-seller relationships. Then one Sunday morning, the 7th of December, 1941, the Japs bombed Pearl Harbor.

The orderly, methodical age of

procurement ended and a new age began. America converted to war production and many products and many suppliers with whom we had built up sound business relationships over the years disappeared. Some companies made half-hearted efforts, the best they could do during the war, to keep in touch with their old customers and supply them the best they could. Others ceased altogether and concentrated 100% on war products.

With the end of the war many concerns were fortunate in being able to reestablish the purchasingsales relationships which they had enjoyed in the other era, but things were not the same. Factors beyond the control of the supplier intervened. New suppliers, new concerns, and new products appeared and joined in the merry race for raw materials. Strikes became and still are a major hazard. We used to borrow the old Wall Street axiom, "Never sell the market short on a strike", but we can't do it any more. Strikes have been so general, so crippling, and of such long duration that they no longer can be regarded as a short-term threat.

# A Look Into the Future

This brings us to the selling policies and purchasing policies of the future. I will follow the same order which I used in recounting those of the past which are only my personal opinions based on observation and travel throughout the United States over the last two years, during which time I have visited and done business in 26 of the 48 states.

Sources of supply will still be carefully selected, but they will be more diversified in the future. More companies will share in our business.

The trend on inventories will be to control them better and to distribute them more equitably between the buyer and seller. In the old days the seller was forced to carry most of the load. Today the buyer has to carry it. In the future it will be more of a 50-50 basis, as I see it.

The salesman of the future will be more technically trained. It is encouraging to see many of our large companies starting training schools for salesmen. Only recently in the trade press I noticed that one company announced a program of sales training on a new and intensified basis. The article said that the new program is designed to increase the efficiency and interest in product sales, represents the company's first formal sales training since 1940. Trainees will be selected on a competitive basis for the various divi-Continued on page 294



"We used to make seven duplicates of all purchase orders. Now, we make eight. The union wants to know what we're up to!"



The Purchasing Department offices are located in the Administration Building of the University

# PURCHASING FOR A LARGE UNIVERSITY

By Fred M. Burt .

Wide diversity of purchased items and close adherence to budgeted departmental appropriations, mark the purchasing procedure at U.S.C.

THERE was an Englishman, Lord Lounsbury, who will long be remembered for one comment that he made. He must have been an employer struggling to orient new personnel into a workable understanding of the job, or again, he might have been an educator. In any case, he is credited with the classic comment on "the infinite capacity of the human mind to resist the introduction of knowledge."

duction of knowledge."
At the University of Southern California, Los Angeles, Purchasing Agent Dean L. Fisk (who is also Secretary of the Purchasing Agents Association of Los Angeles) says that his job is to procure the component parts, equipment, supplies,

power, fuel, and lubricants for the academic plant that functions to break down that infinite capacity for resistance, plus the subsequent introduction of knowledge. The raw material for processing consists of more than 13,000 students, distributed among some 26 colleges and schools making up the University including medical, dental, pharmacal, architectural, engineering, and numerous other specialized instructional fields. The inculcation of learning is carried on (or valiantly attempted) by more than 500 professors, assistant and associate professors, instructors, teaching and research assistants, lecturers, fellows, coaches, etc., nearly all of whom, with varying degrees of frequency, call upon the Purchasing Department for procurement services.

Mr. Fisk says that he has, in effect, at least 250 "assistant buyers"—men and women who, with some regularity, originate requisitions for the purchase of equipment and supplies, often providing the exact specifications (and sometimes the names of vendors) of which they are—at least presumably—best qualified to determine.

There is a daily average of about 125 requisitions coming into the Purchasing Department, with some 50 to 80 purchase orders resulting from them. Many requisitions call for quantities of but a single unit of

THE SOUTI	UISITION UNIVERSITY OR HERN CALIFORNIA  Size of the Comptroller: wing aspenditures are requested diversed to or performed for				
WANTITY	1 T B M S (Glov Complete Brends or	Specifications)	coer	For Use of Days. Filling Greier	
					-
					-
	Please specify on	ader preferred for eatsid	ir parchasa.	FOTALS	
Appropri	4	A	port		wchating Aprel
-	Dr		ands Available		Acet. Bogs.

This form doubles as a requisition on stores or for purchase, and likewise covers a variety of other requests for services and expenditures coming under Purchasing Department jurisdiction

such items as, for example, scientific and laboratory equipment. Other requisitions carry long lists of supplies, in considerable volume.

The operation of a large modern university is big business, and the purchases cover a broadly diversified field—tens of thousands of different items—that is unlikely to be equalled in an industrial plant with a comparable, or even much greater, dollar volume of purchases. This Purchasing Department's buying commitments add up to nearly two million dollars annually, and this does not include purchases made for the Book Store with its wide va-

riety of supplies, or for the Student Union and residence hall operations, for which most purchases are made directly by their respective managers.

The top authority for final approval of major purchases (except those entailing large capital expenditures, considered by the Board of Trustees) is vested in the President of the University, Dr. Rufus B. von Kleinsmid. Next in line of authority, in the business organization, is the Comptroller-Vice President, and then the Assistant Comptroller, Chief Accountant, Purchasing Agent, and General Manager of As-

sociated Students (Student Union). This somewhat unusual arrangement, from an industrial viewpoint, is tied in with strict budgetary control of departmental expenditures.

The whole complex matter of expending the large sums budgeted for the many different departments, and making many other special, un-budgeted purchases, is one that entails a considerable flexibility of determination and operation. It must at the same time be under careful control, to provide assurance that expenditures follow the line of importance of the needs and maintain a balanced program. There is just so much money annually available in this non-profit institution, much of it specifically allocated to meet the budgets of the various departments. Making certain that these funds are not misspent is a joint responsibility of the Purchasing and Accounting Departments, as will be further outlined.

# **Background** of Experience

In such a situation, it is necessary for the Purchasing Agent to have a very wide knowledge of overall and specific requirements. Mr. Fisk is thoroughly grounded in this knowledge through having functioned as Purchasing Agent for 14 years, preceded by 8 years of experience in running the book store. This long familiarity with the job and all that it entails, has likewise equipped him with the knowledge of what is basic and essential in the way of records and paper work, resulting in an ex-

DEAN L. FISK, Purchasing Agent University of Southern California



The Student Union Building contains the Book Store and cafeteria, two of the large purchasing units in the University's supply program



ceptionally simple and direct routine, and a minimum of permanent files. Large and varied as this purchasing program is, Mr. Fisk handles it with but two assistants—his secretary, Jean Kozio, and Eleanor Tracy, invoice and file clerk.

# Requisition Form

The requisition is a multi-purpose form, serving a variety of purposes other than actual purchasing. Basically, it is a request for expenditures on behalf of the various departments, which may consist of personnel additions to a departmental payroll, or additional telephone installations, or the withdrawal of stocked items from a storeroom, as well as purchases to be made. In keeping with the system of budgetary control, it is addressed to the Office of the Comptroller. As a practical working form, it is prepared in triplicate, the original and the second copy going to the Purchasing Agent and thence to Comptroller and Accounting, while the third copy is retained at point of origin.

In the heading of this form, eleven classifications are listed which are checked to show the point of origin. Eight of these service departments have a direct connection with the Purchasing Department in that all of the buying is done there and they are under the general supervisory control of Mr. Fisk. These are:

A & M (Addressing and mailing).

Mimeo (Mimeograph department) where a great quantity and variety of duplicating work is turned out—examination question sheets, course syllabi, bulletins, and the like.

O & M (Operation and maintenance). This classification covers supplies for janitors, gardeners, housekeepers, plumbers, electricians, carpenters, and other maintenance personnel.

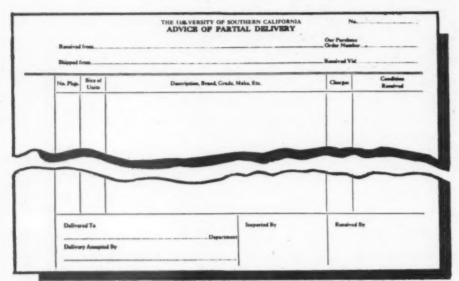
Pay Roll. This covers additions and transfers of personnel, with the proper allocation of salary and wage expense.

Photo Department. This includes all types of photographic work as required for many purposes—News Bureau pictures, student portraiture, and many others; also photostatic service.

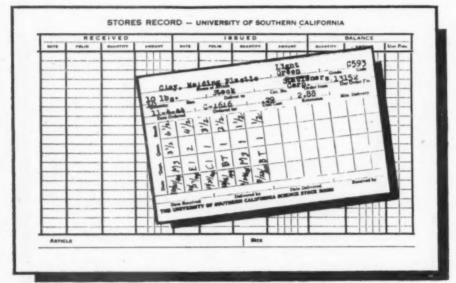
Press. The University of Southern California Press does practically all of the large amount of printing required by the University—catalogs, bulletins, circulars, forms, pub-

Appr. OFF	TY OF SOUTHERN CALIFORN TICE OF THE COMPTBOLLER 3851 University Are. Les Angules This member vivien. B/L. ( bits, cerrispe	31060
	Terms	
Please furnish the following subject to cond		
Deliver to  Merchandise must reach us by	Ship Via	
F	TICLES UNIT PRICE	TOTAL
THREE CORIES OF	INVOICE	1
THREE COPIES OF MUST BE FURNISHED		
THIS PURCHASE	ORDER	
This order is placed by the purchaser with the under agrees, that he Pederal statets has been visited in	reptacing, and in accepting the oather the manufacture or sale of the finan	1 1 18
P	so Sated above. All involves authorized My, description and/or prior in issues	
COMMITTORIS  1. Mail acceptance of this order immediately.	Mod INVOICES IN DUM  B/L to	UCATE and original
If prices are higher than especified, do not ship. Adv     If prices is essected as even it is agreed that ye percuising market price.	The University of S	enthern California
Mail acceptance of this order transmission, crediting in the second second to the control of the control of the second second to the control of the second second to the second sec	The University of S and the toward the day of S and 1 University o	outhors California SITY AVE. D, CALIF.
a first observed interest or beauting, applicage of victoria, and the second of victoria and applications of the second of the s	The University of Sales University LOS ANGELS on the Control of Sales University of Sales order to an or one of control of the order	outhers California SITY AVE. B. CALIF.
to the thirden absorber the sample, packing of vicinity of the parties on higher these specified, do not they Adv. If prints one higher these parties, the not other. Adv. If prints one higher the first parties are preventing market prints of the parties of the prints of the parties of the prints of the parties of the pa	The University of Sass Universit	
to the stillingua silvent our beautity, passing of vicinity of the stillingual section of the stilling	The University of Sales Un	
The solutions assessed and solutions of solutions and solutions of the solutions of the solution of the soluti	The University of Sales University LOS ANGELS from its first the response for or on recognity of the order	
the following statement of the statement and the statement of the statemen	The University of Satt Universit	
to you with charge the transcertation left any most in the comment of the comment	The desire of the september of the series	*wrketing Agree
to you with charge the transportation leafs may, manyl spen receipt or speciment grades are supplied to the speciment of the speciment grades are supplied to the specimen of	COMPTROLLER'S OFFICE COPY	Parkathy Agest  Satharby Parchadag Agest.
to you with charge the transcertation left any most in the comment of the comment	COMPTROLLER'S OFFICE COPY	*wrketing Agree
to you with charge the transcertation left any most in the comment of the comment	COMPTROLLER'S OFFICE COPY	Parkathy Agest  Satharby Parchadag Agest.
to you with charge the transcertation left any most in the comment of the comment	COMPTROLLER'S OFFICE COPY	Parkathy Agest  Satharby Parchadag Agest.
to you with charge the transcertation left any most in the comment of the comment	COMPTROLLER'S OFFICE COPY	Parkathy Agest  Satharby Parchadag Agest.
to you with charge the transcertation left any most in the comment of the comment	COMPTROLLER'S OFFICE COPY	Parkathy Agest  Satharby Parchadag Agest.
VENDOR'S INVOICE AMO  VENDOR'S INVOICE AMO  NOTICE OF SIGN	COMPTROLLER'S OFFICE COPY  DUNT RECEIVING OUR D. Ked for Payment By  AND RETURN IMMEDIA	Builfully Parchading Agrae.
VENDOR'S INVOICE DATE NUMBER  NOTICE OF SIGN  RECEIPT TO THI	COMPTROLLER'S OFFICE COPT  DUNT RECEIVING OUR D. Ked for Payment By  REPORT NO. Vessilver No. Payment By  AND RETURN IMMEDIA  E COMPTROLLER'S OFFICE	Builfully Parchading Agrae.
NOTICE OF SIGN RECEIVED TO THE OF MERCHANDISE PER CELEVE FOR USE	COMPTROLLER'S OFFICE COPT  DUNT RECEIVING OUR O. Ked for Payment By  REPORT NO. Variaber No. Payment By  AND RETURN IMMEDIA  E COMPTROLLER'S OFFICE  DATE  OF RECEIVING DEPARTMENT ONLY	Railfurly Furchasing Agrae.  Data
NOTICE OF SIGN RECEIVED TO THE OF MERCHANDISE PER CELEVE FOR USE	COMPTROLLER'S OFFICE COPT  DUNT RECEIVING OUR O. Ked for Payment By  REPORT NO. Variaber No. Payment By  AND RETURN IMMEDIA  E COMPTROLLER'S OFFICE  DATE  OF RECEIVING DEPARTMENT ONLY	Railfurly Furchasing Agrae.  Data
NOTICE OF SIGN POT OF MERCHANDESE POR USE  NOTICE OF RECEIPT TO THIS OF MERCHANDESE POR USE  NOTICE OF RECEIPT TO THIS OF MERCHANDESE POR USE  NOTICE OF RECEIVE POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF SIGN POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF SIGN P	CONSTRUCLER'S OFFICE COPY  OUNT RECEIVING OUR O. K. of for REPORT NO. Variable No. Paymont By  AND RETURN IMMEDIA  E COMPTROLLER'S OFFICE  BY DATE  OF RECEIVING DEPARTMENT ONLY  Accopted By  Accopted By  March Paymont By  Paymont By  DATE  OF PARTIAL SHIPMENTS  OF PARTIAL SHIPMENTS  (4)  [194. (4)	Batthathy Parchading Agrae.  Dots
NOTICE OF SIGN POT OF MERCHANDESE POR USE  NOTICE OF RECEIPT TO THIS OF MERCHANDESE POR USE  NOTICE OF RECEIPT TO THIS OF MERCHANDESE POR USE  NOTICE OF RECEIVE POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF SIGN POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF SIGN P	COMPTROLLERS OFFICE COPY  COMPTROLLERS OFFICE COPY  OUNT RECEIVING OUR O. Ked for Payment by  REPORT NO. Vousiber No. Payment by  COMPTROLLER'S OFFICE  D BY DATE  OF RECEIVING DEPARTMENT ONLY  LIST OF PARTIAL SIMPLEMENTS  OF PARTIAL SIMPLEMENTS  Of Receiving Department only  LIST OF PARTIAL SIMPLEMENTS  OF PARTIAL SIMPLEMENTS  OF PARTIAL SIMPLEMENTS  OF PARTIAL SIMPLEMENTS  OF SIMPLEMENT	Basificative Perchaning Agran. Dots
NOTICE OF SIGN POT OF MERCHANDESE POR USE  NOTICE OF RECEIPT TO THIS OF MERCHANDESE POR USE  NOTICE OF RECEIPT TO THIS OF MERCHANDESE POR USE  NOTICE OF RECEIVE POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF SIGN POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF SIGN P	CONSTRUCLER'S OFFICE COPY  OUNT RECEIVING OUR O. K. of for REPORT NO. Variable No. Paymont By  AND RETURN IMMEDIA  E COMPTROLLER'S OFFICE  BY DATE  OF RECEIVING DEPARTMENT ONLY  Accopted By  Accopted By  March Paymont By  Paymont By  DATE  OF PARTIAL SHIPMENTS  OF PARTIAL SHIPMENTS  (4)  [194. (4)	Basificative Perchaning Agran. Dots
NOTICE OF SIGN POT OF MERCHANDESE POR USE  NOTICE OF RECEIPT TO THIS OF MERCHANDESE POR USE  NOTICE OF RECEIPT TO THIS OF MERCHANDESE POR USE  NOTICE OF RECEIVE POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF SIGN POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF SIGN P	COMPTROLLER'S OFFICE COPY  DUNT RECEIVING OUR OUR Payment by  REPORT NO. Voucher No. Payment by  E COMPTROLLER'S OFFICE  DATE  OF RECEIVING DEPARTMENT ONLY  194  28T OF PARTIAL SHIPMENTS ONLY  194  194  194  194  194  194  194  19	Basificative Perchaning Agran. Dots
NOTICE OF SIGN POT OF MERCHANDESE POR USE  NOTICE OF RECEIPT TO THIS OF MERCHANDESE POR USE  NOTICE OF RECEIPT TO THIS OF MERCHANDESE POR USE  NOTICE OF RECEIVE POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF MERCHANDESE POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF SIGN POR USE  NOTICE OF SIGN POT OTHER POR USE  NOTICE OF SIGN P	COMPTROLLER'S OFFICE COPY  DUNT RECEIVING OUR OUR Payment by  REPORT NO. Voucher No. Payment by  E COMPTROLLER'S OFFICE  DATE  OF RECEIVING DEPARTMENT ONLY  194  28T OF PARTIAL SHIPMENTS ONLY  194  194  194  194  194  194  194  19	Basificative Perchaning Agran. Dots
NOTICE OF SIGN POPULATION OF MERCHANDISE POR USE  NOTICE OF SIGN TO THE POPULATION OF MERCHANDISE POR USE  NOTICE OF RECEIPT TO THE RECEIVE POR USE  Méas. Delivered on BEC.  Use "Advise of Partial Delive (1) Order Co	COMPTROLLER'S OFFICE COPY  DUNT RECEIVING OUR OUR Payment By  REPORT NO. Vousher No. Payment By  E COMPTROLLER'S OFFICE  DATE  OF RECEIVING DEPARTMENT ONLY  194  28FF OF PARTAL SHIPMENTS  OFFICE  194  194  194  194  194  194  194  19	Basificative Perchaning Agran. Dots
NOTICE OF SIGN POPULATION OF MERCHANDISE POR USE  NOTICE OF SIGN TO THE POPULATION OF MERCHANDISE POR USE  NOTICE OF RECEIPT TO THE RECEIVE POR USE  Méas. Delivered on BEC.  Use "Advise of Partial Delive (1) Order Co	COMPTROLLER'S OFFICE COPY  DUNT RECEIVING OUR OUR Payment by  REPORT NO. Voucher No. Payment by  E COMPTROLLER'S OFFICE  DATE  OF RECEIVING DEPARTMENT ONLY  194  28T OF PARTIAL SHIPMENTS ONLY  194  194  194  194  194  194  194  19	Basificative Perchaning Agran. Dots

The four copies of the purchase order each serve a specific purpose in departmental procedure, and spaces are provided for differing entries according to the various uses



All deliveries are promptly reported — on the purchase order if shipment is complete, otherwise on this partial delivery report



Perpetual inventories are kept in the stockrooms; a standard type card is used for operating and maintenance supplies, while the science stockroom has a special form for charge-out to various departments

licity in a variety of forms, and many other items. The print shop supplies are procured through the Purchasing Department.

Sc. Stk. Rm. (Science Stock Room) is one of the largest "customers" of the Purchasing Department. Under the supervision of Dr. Elmer A. Daniels, Science Storekeeper, a comprehensive and extensive stock of student and departmental apparatus and supplies is kept available for use and issue, or requisitioned for special purposes.

Telephone. The more than 500 telephones serving the University are under the control of Mr. Fisk. Requests for additional phone installations, transfers, and the like, come to him. Requisitions for telephone service are made on the Purchasing Department by checking off this item on the requisition and noting the pertinent information in the body of the form.

# Handling School Supplies

The Book Store is also under the general supervisory control of Mr. Fisk, but does its own purchasing, following the same procedures as Purchasing Department in handling requisitions and purchase orders and in its relation to the Accounting Department. A copy of each order goes to Mr. Fisk. The stock in the book store is kept replenished through a constant visual inventory. It is divided into six departments — photographic, trade book, text book, specialty, school supplies, and art-each having its own manager who keeps close track of each item of stock. As the supply of any item gets low, it is en-

Hancock Hall, headquarters for research in the field of marine biology. It is equipped with X-ray and cold storage rooms, a collection of rare specimens from Pacific equatorial waters, and a modern radio broadeasting studio



tered on a "want" or "short" list. From this list, requisitions are made up and given to the Book Store Manager, Daniel L. McNamara, for his approval and subsequent translation into purchase orders.

The Book Store is in effect a procurement agency, receiving department, warehouse and dispensary for the particular and numerous sup-plies they stock. The requisition serves yet another purpose in that other University departments obtain these supplies from the store by using the requisition form. For instance, if the Purchasing Department needs stationery supplies coming within this classification, they are obtained by sending a requisition to the School Supplies (including stationery) Department of the book store.

Each school, college, or other department of the University has its own head; and in many cases is divided into several component departments or sections, each with its Professor or other top authority. The foregoing are the individuals

authorized to approve requisitions.
As previously indicated, the third (blue) copy is kept at the point of issuance. The original and second (white and yellow) copies go to Purchasing, where the vendor and cost are determined and entered if this information has not been previously furnished by the requisitioning department. The latter procedure prevails generally in respect to the many special items required for specific purposes, such as scientific apparatus and equipment or chemical supplies. In such cases, the originator of the requisition has usually made a detailed investigation

of the exact unit best suited to the need, and where it may be obtained. However, at times, the Purchasing Agent must question the desirability or feasibility of making a purchase, particularly when it calls for a major expenditure. For example, some professor may be firmly convinced that some unit of scientific equipment is highly essential, but a further analysis of the situation by the Purchasing Agent may determine that essentiality is not sufficient in relation to the other departmental requirements. Such requisitions and others of major importance are generally referred to the Comptroller, and in some cases to the University President. The latter while not concerned with the big majority of routine purchases, has the final administrative and financial responsibility and makes it a point to keep a good line on how, and for what, University funds are expended.

From the Purchasing Department, the two copies of the requisition go to the Accounting Department for notation as to whether funds are available for the purpose. If it is a regular departmental purchase and funds are available in its budget allowance, it is so stated. The yellow copy is then retained in the Accounting Department as a record of the commitment against the department's budget. The white copy is returned to the Purchasing Department and becomes the basis for issuing a purchase order. When the requisition is for an unbudgeted item of supply, and entails an unusual or large expenditure, it is referred to the Comptroller and/or the President for further review and approval.

The purchase order is made out in quadruplicate. The original is sent to the vendor, and one copy to the Comptroller's office. The other two copies are working copies in the procurement procedure.

# Purchase Order

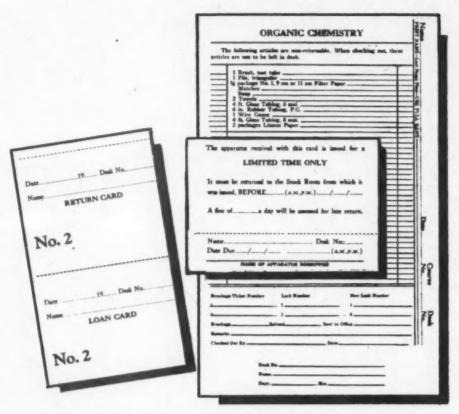
The receiving copy is sent to the point where delivery of the order is to be made, generally the stockroom serving the department that originated the requisition. If the delivery is checked in complete at that point, it is so recorded, together with other pertinent comment such as any variance with the purchase order specifications, and the form is returned to Purchasing. If a partial shipment is received, or if it is one of several scheduled deliveries on a blanket order covering a stated period, an "Advice of Partial Delivery" is filled out and sent to Purchasing, while the date of partial delivery is entered in the space provided at the bottom of the purchase order and the order copy is retained at the receiving point until the final delivery is received.

On its return to Purchasing, the receiving copy is checked against the vendor's invoice for payment approval and sent on to Accounting, with two copies of the invoice, for payment. A third copy of the invoice is sent to the requisitioning department for their cost and budget records.

The fourth copy of the purchase order is kept in the Purchasing Department file, alphabetically by vendors, until final receipt of the merchandise. When the order is completed, and entries made, this copy



The Edward L. Doheny, Jr., Memorial Library, with more than a third of a million vol-umes, is noted for its special libraries of philosophy, architecture, arts, law, medicine, science, international tions, and guistics lin-



Accurate records are kept of supplies furnished to students in the technical courses. The term card lists returnable items on one side, non-returnable items on the other. Equipment out on loan is checked on temporary cards

is transferred to a permanent file, numerically arranged. This copy is known as the "Purchasing or Issuing Department Copy", since it is not always a Purchasing Department record. The same form is used for those divisions which do their own purchasing — the Book Store, the fountain and cafeteria operated by the Student Union, and the Elisabeth von Kleinsmid Halls, which contain students' living quarters, dining halls, and recreational facilities under separate management. All of these buying divisions follow the same procedure as set up in the Purchasing Department in reference to accounting and payment of invoices.

Stock Rooms

The Operation and Maintenance Division has its own stockrooms, and keeps a perpetual inventory of supplies, using a stores record card for each item to control amount of stock on hand and purchases for replenishment.

The Science Stockroom, which receives the greatest quantity and variety of deliveries — a very complex assortment — has thousands of cards in its perpetual inventory files. One stockroom is devoted to chemicals. Since the storage method is

diversified, including shelves, bins, and drawers, they are arranged according to a combination of alphabetical and numerical order. Each item has an identifying number—numbers 1 through 2,000 are as-

signed to the chemicals themselves, and most of these numbers are in active use; solutions made up are numbered from 2,000 up. They are all listed in a stock book for cross reference. The appointed place for each item is plainly indicated by large numbered cards. Whenever a bottle or other container of a chemical is received, it is marked with the appropriate number for proper placing in stock. The date of receipt is also marked on the container, so that the older shipments may be used first.

In another stockroom, apparatus and other supplies are similarly kept in orderly fashion for issue and loan.

# Withdrawals

This department functions not only as a stockroom, but also as a receiving station and clearing house for a wide variety of items requisitioned for the specific use of several departments. All withdrawals are made on the requisition form. If the items are not available in stock, Dr. Daniels issues another requisition (to purchase) on the Purchasing Department. One copy of each requisition, properly priced, is returned to the department where it originated so that the latter may be informed of costs charged against its budget. Each month, copies of all requisitions on the stockroom, issued by all departments, are sent to accounting for the distribution of costs to the subject departments.

The Science Building houses the School of Medicine, College of Pharmacy, and laboratories in the fields of botany, chemistry, zoology and allied subjects. It is also the headquarters for a variety of technical and research projects including work for the National Foundation for Infantile Paralysis. The science stockroom occupies a large basement area in this building



# PROPAGANDA FOR AMERICAN INDUSTRY

American businessmen owe it to themselves and to the whole system of free enterprise to see that the public gets the facts about costs and profits

# By Grey Leslie

AMERICAN business, it seems to me, has been overly timid in doing a selling job of prime importance. It has an impressive story to tell—a story that can be told only of America, about things that happen only in America.

If American industry would campaign to tell how much of the money it takes in for everything it makes, goes out again into wages to the people who make it; how much it spends for materials; how much goes into the gaping maw of taxes; how much for social security and pension funds; how much is left for for those who risk their money to provide the tools and the plants—people would begin to realize that American business is not an aristoc-

racy, not a combine of economic royalists, but a reservoir of everybody's money working for everybody.

Forthright propaganda of this sort would effectively counteract and finally defeat the other kind of propaganda; the kind that has monopolized public attention too long; the kind that has been so useful to demagogues pointing an accusing finger at American big business; the kind that fosters misconceptions to breed other misconceptions and warp public opinion for a vicious purpose.

American business has shied way from propaganda, both in its use and in its definition. Perhaps that is because the simple word "propaganda", when uttered with a carefully rehearsed intonation of scorn, can accrue a devastating connotation of disrepute—even wickedness.

It is often done by experts in word manipulation and political orators. Propaganda is supposed to be the tool of scoundrels. By it, they controvert our opinions, denounce our faiths and frustrate all our efforts to know the truth. Practitioners of propaganda, therefore, are loathsome villains with the mark of the beast on them.

This is the paregoric dosage usually offered whenever someone suggests the use of propaganda. No matter that it is good, wholesome, American propaganda, aimed at the promotion of a way of life American

SOURCES AND DISPOSITI	ON OF INCOME*		
		dans.	Increase or
WHERE OUR INCOME CAME FROM	1945	1944	Decrease
Revenues from hauling coal and coke freight	\$109,099,741	\$118,095,390	\$ 8,995,649-I
Revenues from hauling other freight	63,636,420	66,781,322	3,144,902-1
Revenues from carrying passengers	22,891,428	23,506,847	615,419-1
Other transportation revenues	7,704,558	8,152,689	448,131-
Rent from equipment used by others, less amounts			
paid to others	7,859,784	6,117,586	1,742,198-
Dividends from stocks owned	958,665	989,141	*30,476-
Other income from non-railroad operations	853,485	978,224	124,739-
Total	\$213,004,081	\$224,621,199	\$11,617,118-
WHERE OUR INCOME WENT			
Wages	\$ 81,382,963	\$ 80,618,715	\$ 764,248-
Materials, supplies, and fuel	29,762,512	27,668,892	2,093,620-
Railway tax accruals, other than federal income	27,102,712	21,000,072	2,073,020-
and excess profits taxes	11,656,482	12,316,760	660,278-
	11,000,402	12,510,700	000,276-
Payments to contractors, associations, other			
companies, and individuals for services and	30 000 (33	5 020 FT/	. 200 035
expenses	10,220,633	5,830,716	4,389,917-
Rentals and expenses paid for facilities used			
jointly with others, less amounts received	1 000 100		0.00 0.00
from others	4,802,409	4,552,104	250,305-
Interest on Funded Debt	7,003,784	7,053,857	50,073-
Other interest	15,473	4,910	10,563-
Depreciation, amortization, and retirements	60,633,377	20,396,060	40,237,317-
Total	\$205,477,633	\$158,442,014	\$47.035.619-
Net Income before federal income and excess			
profits taxes	\$ 7,526,448	\$ 66,179,185	\$58,652,737-
Federal income and excess profits taxes	8,853,399CR	38,838,190	47,691,589-
Net Income	\$ 16,379,847	\$ 27,340,995	\$10,961,148-
WHAT WE DID WITH NET INCOME AND SURPLUS			
Appropriations for Sinking and Other Reserve Funds	\$ 488,144	\$ 501,715	\$ 13,571-
Dividends paid on Common Stock	26,239,869	26,800,739	560,870-
*Chesapeake & Ohio Railway			

# Where, oh where did the money go?

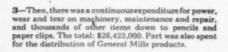




I — Most of the money — approximately \$206,331,000 —was spent for raw materials, the farmer getting the biggest share for his corn, wheat, oats, and other pro-duce. General Mills is one of the largest single buyers of agricultural products in America.

2—Meeting the General Mills payroll accounted for another big piece of the money—\$28,801,000. The General Mills family of employees includes more than 10,000 people living all across America. In addition, \$1,552,000 went into the Employees' Retirement Fund.







4—Like all of us, General Mills turned over a sizeable amount of money to the tax collector. \$11,258,000 went to Uncle Sam to help fight the war . . . to help equip our armed forces in their fight against the Nazi and the Jap.

cans believe desirable—the propaganda angle is what condemns it.

# Creed for Business

I believe that the time has come for American business to boldly engage in its own propaganda without apology or subterfuge. It should proudly propagandize its growth, its size and its success.

I consider it part of the duty of American business to sell America back to the Americans. I believe that the time has come for the American businessman to stand up, unashamed and say:

"Yes, I do head a big business. I am a success. I am part of a system that has made America greater in five generations than any country of Europe in fifty. I am an inveterate antagonist of anyone who would malign American business. I intend to answer, with incontrovertable facts, the vicious misconceptions planted and nurtured by the opponents of American Industry, because I consider them real enemies and a menace to the nation. I intend to expose the motives of such people; to show that they are masquerading as champions of the common man to create disunion and discontent; that one of their aims is to cultivate an antagonism between 'big' and 'little' business.

"I intend to enlighten some unthinking people who have been led to believe that it is wicked to be big and virtuous to be little; I intend to prove that both big and little business are parts of America's Industry; that both are dependent on each other: that the big grew from the small, and destroying one can only



3—So far, we've accounted for \$274,365,000 of the entire year's income. What's left—\$6,474,493—is net profit, and here's where it went: \$3,767,581 was paid to ome 9800 owners of the company. These dividends here the same as last year's and for many years before.



46—The balance . . . \$2,706,912 . . . was reinvested in the business for expansion, new facilities, the develop-ment of new products, and for other future needs . . . thus making General Mills stronger and the jobs of its employees more secure. One more point . . .



7—This past year, General Mills' sales totalled \$280,-839,000 as compared with \$281,200,000 for the year before. While this year's sales are more than double those of the last peacetime year (\$126,938,000), profits rose only from \$5,251,732 in 1941 to \$5,556,912 in 1944, to \$6,474,493 for the fiscal year just closed.

result in the destruction of both; that under the American economic system, if fortitude, perseverance, determination, foresight and thrift are vigorously applied, any little business may become big.

"I intend to destroy the fallacy that management and owners selfishly absorb the bulk of industry's income. I propose to fight fire with fire; to use my type of truthful propaganda to combat the dishonest kind."

# **Public Misconceptions**

If there is any doubt of the need for such a campaign, let anyone seriously examine the results of some public opinion polls. Public opinion polls have proved one of the best methods of finding out what the general public thinks. Their use has increased over 1000% in 5 years. A recent survey made by Knight & Parker for the Merchants & Manufacturers Association, Los Angeles, California, reflected the thinking of a representative cross-section of Americans as to the disposal of Industry's dollars.

One thousand persons in Los Angeles County, covering four agegroups in typical occupations, and 18 geographical sub-areas, were asked the following question:

"After a corporation has paid for materials and taxes and other expenses, except wages and salaries, the money that is left goes to pay the employees and owners; what per cent of the money that is left, do you think, is used to pay the employees, and what percent do you think is retained by the owners?"

The answers:

	F	er Cent
	Retained	of
Paid to Employees	by Owners A	nswers
Nothing to 13%	100% to 87%	9.9
15% to 20%	85% to 80%	12.7
25%	75%	9.4
30% to 35%	70% to 65%	6.7
40% to 45%	60% to 55%	9.1
50%	50%	11.9
55% to 75%	45% to 25%	12.0
80% to 97%	20% to 3%	10.2
Don't know		18.1

When 60 out of every 100 persons interviewed are under the impression that the owners of business retain more than  $50\phi$  out of every dollar of income, and more than 30 out of every 100 believe that the figure is as high as  $75\phi$ , it is clear that the big business baiters have been permitted to do a pretty successful job in propagandizing the general public; it is clearer that the average man - in - the - street needs some honest information.

# Truth About Profits

According to reliable government figures, the fact is that an average of less than 5¢ out of every dollar of income was retained by industry for dividends, interest and reinvestment, after expenses, including wages, materials, taxes, etc., were paid.

The result of polls conducted by Dr. Clyde W. Robinson of Opinion Research Corporation, show that the general public believes the average corporate wartime profits were 30% and the peace-time average was 18%. The Treasury Department shows that the average return realized by venture capital over the last 15 years was less than  $3\frac{1}{2}\%$ .

The collective need for American Industry to thoroughly publicize the facts about the distribution of its income, is emphasized by the results of many other polls conducted throughout the nation. All of them reveal an amazing misconception difficult to imagine existing among intelligent people.

Purchasing Agents should have a special interest in propaganda for American Industry. They can concern themselves with fact-finding, and widely circulate the pertinent facts about the distribution of their companies' incomes. The bulk of material costs, and their relationship to wages and other costs, accentuate that interest. Every supplier and every salesman has a correlative interest, because all industry income distribution, percentage-wise, is so nearly alike.

There need not be any highpitched rhetoric about it. I know several Purchasing Agents who are doing a good selling job in this matter. They are doing it by making available to salesmen calling on them, a concise statement of their companies' history and growth, and the facts telling where the dollars go. Frankly it is propaganda, but it is the American brand and it should attract many more recruits.

# Making Figures Intelligible

The traditional method of telling the public what it should know about corporate income distribution has been by the publication of financial statements. Their presentation seems to have followed an historical pattern almost like a ritual. Except to accountants, auditors or persons having a direct proprietary interest, most financial statements are meaningless arrays of figures under technical headings. Certainly they do not tell the man-in-the-street the story of how Industry's dollars are distributed. They have no force in correcting his misconceptions. However, some large businesses are utilizing the presentation of their financial statements as a means of telling the public where the money comes from, where it goes and who gets it. A financial statement like that of the Chesapeake & Ohio Railway, shown herewith, tells the story in language that anyone can understand.

# Dramatize the Story

An even more direct and effective means of combating the serious misconceptions prevalent in regard to business and profits is through established publicity channels, which can be used as the medium for dis-



seminating factual economic information as well as for the more usual sales function. General Mills, Inc., has done a consistent and outstanding job of this sort in pounding home the fact that companies, like people, work to earn a living and that they spend most of what they take in. Through their advertising they have made it a matter of common knowledge that profits, even in wartime, are just about two cents for every dollar of sales. In a more popular approach to this theme, addressed to the general reader audience of the Saturday Evening Post and leading farm journals, they have had an eminent cartoonist visualize the distribution of income.

206.3 million dollars for raw materials

28.8 million dollars for payroll

26.4 million dollars for power, maintenance and operating materials

11.2 million dollar for taxes

2.7 million dollars for reinvestment and expansion

3.7 million dollars in dividends It is further pointed out that while sales volume has more than doubled as compared with prewar records, the total profit has not increased in any such proportion and the dividend rate has been stationary. A specimen of this graphic portrayal is reproduced herewith, by permission.

Every American business, large or small, has a significant and forceful story to tell about where the dollars go. No standard specifications can be devised for the manner of telling it; but the ingenuity and imagination typical of American businessmen may be depended on to make that story dramatic and enlightening.

# The Job Must Be Done

American Industry has a patriotic duty that should induce it to undertake this selling job. The serious menace of Communism can be defeated by giving the American public the facts; facts based upon unquestioned integrity and competence. Generally, people are basically sound in their reasoning, if supplied with facts. The responsibility for giving the public the facts rests squarely with management. It is enlightened self-interest to accept that responsibility, and to respond to it energetically.

A recent issue of the Guaranty Trust Company Bulletin (July 3, 1946) devoted a leading article on the subject, "Who Gets the Consumer's Dollar?" It discussed some of the fallacies most widely prevailing and concluded: "The effects of industrial unrest are tragic enough in any case, but they are doubly tragic if they arise from such profound misconceptions."

Every war produces its Pandora's box of problems. World War II has given us one of the toughest. Two types of collectivism-Communism and Socialism - are savagely competing for favor in all parts of the world. Both types are attracting proselvtes in our own country. Some of our citizens are active and avowed agents, who operate under the evangelizing but clandestine guidance of Soviet Russia. Other citizens are unwitting sponsors of systems utterly alien and antagonistic to American ideals. Still others are influenced by misconceptions and misinformation deliberately planted.

The future of the American System of private competitive business depends on public understanding of its benefits to the public. That means all of us.

It is unnecessary to say that the vast majority of us don't want collectivism under any name or label. But what does need saying, emphatically and often, is that unless we combat the subtle and vicious attacks on American Industry—if we complacently allow things to drift—we shall wake up with one or another form before we realize it.

Propaganda is universally recognized as a weapon of proven efficiency. We used it effectively during the war, but we gave it a high-sounding title—"Psychological warfare".

In our post-war attack on "isms" that would destroy us, let's shed our diffidence and get down to earth. The stern necessity for the forthright use of propaganda for American Business and Industry faces management with compelling emphasis.



"Personally I'd have a lawyer check the contract before I signed it."

# THE BUYER'S ÆSOP



# THE FABLE OF THE SEAL WHO CHANGED JOBS

• By Irma Fueher

ONCE upon a time there was a seal purchasing agent named Clarence. He lived with a colony of seals (a marine aquatic carnivorous animal, group Pinnipedia, family Phocidae or Otariidae) on a rock close to the Arctic region. He was a member in good standing of the Near Arctic Purchasing Agents Association. He bowled a neat 172 average, and the way he could balance procurement problems on his sleek black nose was better than anything you ever saw at Ringling Brothers.

In spite of his accomplishments his fellow buyers liked him, for he was a nice guy and whenever he learned of a supply of plywood he couldn't use he noised the info around. The only thing about Clarence that worried his friends was the way he skipped insouciantly from job to job. Every time he thought he could make a change for the better, he moved himself, bag, baggage, and bowling ball, into the purchasing department of the firm kicking in with the most cash.

"That's all right now while you're young," his friends told him. "But just wait until you get older. There's

no security in keeping on the move." They flipped their flippers gloomily, "A rolling stone gathers no moss."

"That's all right," Clarence always answered. "What with the atomic bomb, there isn't much security anyhow."

At purchasing association parties his friends advised his wife, Cynthia, "Can't you keep Clarence from swimming around this way? You two ought to settle down."

But Cynthia merely smiled trustfully up at Clarence and patted the sleeve of her new seal skin coat, which had cost \$995, plus luxury tax, at the northernmost branch of Peck & Peck.

Things went on in this way for a period of years, during which time Clarence was buyer, successively, for the Near Arctic Swimming Suit Company, the Northern Lights Ice Cream Company, the Reindeer Defroster Equipment Corporation, the Polar Sheet and Tube Company, and Frigid Cap Screw, Inc., his seal friends continuing to cluck about him all the time. But what really got them down was when Clarence moved away from the pleasant flat granite rock formation held by the

Phocidae seals to take a position with the North Pole Roller Bearing Company, a firm owned by some Otariidae seals on a crag three hundred miles away. "He's such a rolling stone he joined the roller bearing company just because of its name," they said, whisking their whiskers as they went down to the men's bar after their monthly association meeting.

Now it happened that some scouts for I. J. Fox were on a safari up Arctico way, and coming upon the Phocidae seals busily making pelts for winter and oil for internal lubrication, they swooped down with murderous weapons and made an end to the whole colony. Only their seal furs lived after them.

Meanwhile Clarence went on to new and better jobs. The last he was heard of he had been called to Washington and had just bought Cynthia a new mink coat.

Moral: Don't confuse security

With resting your pelt in the same chair

Through endless futurity.

And/or: Gathering moss isn't much of an occupation anyhow.

# PURCHASING, QUALITY AND

MATERIAL CONTROL

THE Pitney Bowes organization is a well meters, of postage openers, neturer of postage openers, room letter of nanufacturer machines, room equipy are cigarette tax other allied mility of quality as recigarette, and other all uniformity the purchase recigarette, and other and units, ato meet these materials, precisions products, ato meet of materials scales, precisions products, ato meet of materials well as the make up facturing presental in has been geared to make up facturing presentation in the second of the make and manufacturing procedure as well as to make up facture the necition. The second of the provided the rewithing and parts that go to make an another provided the rewithing and parts that go to make a shown herewith functioning procures which provided the rewithing functioning key forms which provided the rewithing functioning functioning functioning functioning functions in this system are shown here.

A comprehensive set of control records insures that material requirements are met on time and in the proper quality

By JOSEPH A. CZESCIK

Purchasing Agent
Pitney-Bowes, Inc., Stamford, Conn.

OFFICE OF THE PRESIDENT

# ASSISTANT TO THE PURCHASING AGENT

Acts for the Purchasing Agent in the latter's absence; generally assists the Purchasing Agent as required J. A. CZESCIK
Purchasing Agent

#### PURCHASE RECORDS SUPERVISOR

Responsible for the supervision of all records and clerical routine of the department.

## BUYER

Finished Parts Section

Responsible for purchasing finished parts and user's supplies, except blanket orders, from established sources of supply; interviewing salesmen.

# BUYER

Sub-Contract Section

Responsible for purchasing all sub - contracted parts from established sources of supply; interviewing salesmen.

## BUYER

Tools & Supplies Section

Responsible for purchasing all supplies except user's supplies, perishable tools, and furniture, except blanket orders, from established sources of supply; purchasing for employees tools required in their work; interviewing salesmen.

## BUYER

Raw Materials Section

Responsible for purchasing raw material and semi-fabricated parts, except blanket orders, from established sources of supply; interviewing salesmen.

# REQUISITION

A Purchase Requisition, signed by the Department requisition, signed by the Department requiring the material and approved by the Official having line authority, is received by Purchasing with the following information: Quantity, Description, Department Approved and dated and with the remised delivery date quired delivery date.

Purchasing selects the Vendor, en-ters the name, price, terms and ship-ping instructions. Signs the requisi-tion and assigns it a number.

YTITHAU	DESCRIPTION OF ITEMS	P.O. No.	VENDOR
	*		
	a -		MICE
			VIA
			FOR
	7		TERMS
DEPARTMENT	TRA	CE	APPROVED
DATE	PER P.D.		DATE

	:			No.  A  COMMENTATION DIMENSION AS  COMMENTATION DIMENSION AS  COMMENTATION DIMENSION ON AS  COMMENTATION DIMENSION D	A. Code
DATE	REQ NO	DEPARTMENT	709	VIA	TERMS
DUARTITY		DESCRIPTION	OF MATERIAL	1	PRICE
			•		
		9 4			
	0	0			
-	4	4			

# PURCHASE ORDER

The purchase order is made out with

eight copies, distributed as follows:
Original (white) — Mailed to Vendor.
Terms and conditions are printed on reverse side.

2nd copy (green) - Master copy kept in Purchasing Department, hangs on the visible card record. Reverse side ruled for record of date received, quantity re-

ceived, balance due, unit cost, and total.

3rd copy (blue) — Numerical file in

Purchasing Department.

4th copy (yellow) — Alphabetic file in

Purchasing Department.

5th copy (red) — Retained by Buyer,

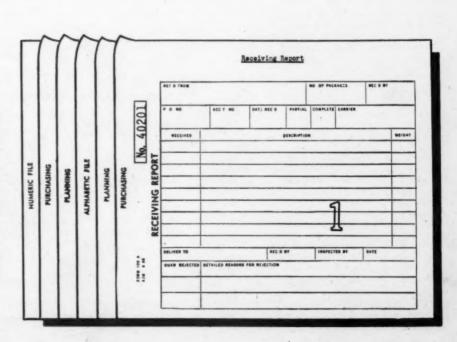
for follow-up.
6th copy (white) — Receiving Department copy. Price information is blocked out on this copy. Reverse side ruled same as 2nd copy.

7th copy (white) - Accounting De-

partment copy.
8th copy (white) — Planning Department copy.

# RECEIVING REPORT

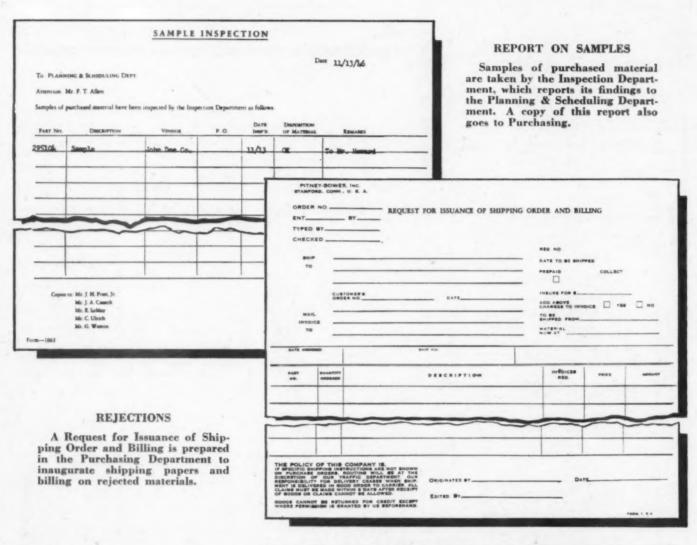
The receiving report is made in six copies. The original (white) and blue copies are attached to the material and moved to the unit of the Quality Control Department which is responsible for inspecting the par-ticular type and kind of material. ticular type and kind of material. After inspection, these copies go to the Purchasing and Planning Departments respectively with any entries regarding rejections and the reasons therefor. Other copies are distributed directly as follows: Alphabetic file (goldenrod); Planning Department (pink); Purchasing Department (green); and Numeric file (vellow). (yellow).



# Rejection Notice No. 137 Date 10/29/16 ing purchased parts and or material have been rejected by Quality Control: Cause of Rejection over on .125 Pin Pinished Parts 7 - .312 hole oversise 1 - .312 hole undersise 2 - .563 dis. undersise 2 - .563 dis. oversise 3 - .150 length undersise Nork in Process 228LO1 121806 901.1 25,169 68160 23980

# REJECTION NOTICES

The Quality Control Department makes a detailed re-port of all rejections of purchased parts and materials, in-cluding finished parts and work in process.



# BRANCH OFFICE PURCHASES

The Purchasing Department at the Factory and Home Office, purchases all articles for the some 50-odd branches. Purchase Requisitions and Purchase Orders are handled in the same manner as for production and maintenance materials at the Factory, except that a Branch Office Re-ceipt of Shipment Form is used to au-thorize payment of an invoice.

As soon as the Purchasing Department has been advised that material ordered for a branch has been shipped, either by means of an invoice or bill of lading, a receipt form is mailed to the Branch, who indicate that the quantity is correct, goods satisfactory, or not, as the case may be.

Branch Office Receipt of Shipment	PITNEY-BOWES, Inc.
10.	Dates
FROM, HOME OFFICE	
We have received an invoice from	indicating that the following has been shipped
10 year	
	J. A. CZESCIN Purchasing Agent
GOODS RECEIVED AS CHECKED BELOW.	
( ) Quantity correct	
( ) Goods received in satisfactory condition	
( ) Not satisfactory—letter of explanation attached	Branch Manager
RETURN THIS FORM PROMPTLY TO PURCHASING DEPARTM	ENT (Signed)

Purchase (	Order Ci	hange	Notice	PITNEY WALNUT & PIC	-BOWES, Inc.
:					Date
ASE CHANGE PUF	CHASE ORDE	R	TO R	EAD AS FOLLOW	'S:
	*	,	0		
	0		3		
		\$	. 0		
			D		
				PIT	NEY-BOWES, Inc.
PLEASE ACENO	WLEDGE RECEIPT	OF THESE	INSTRUCTIONS	84	PURSUALING A

ROTER NO.	VENDOR	DATE
REASON FOR C	NAME P.	
SEASON POR C	HANGE	
		.gned:

## PURCHASE ORDER CHANGE NOTICES

Requests for changes in purchase orders are made on a mimeographed form by the department where the requisition originated, stating the reason for the change. The Change Notice is issued with eight copies, distributed in the same manner as the corresponding copies of the original purchase order.

10	Mr. J. J. Morrow, Personnel Manager	DATE	
SUBJECT	Mr. J. A. Csescik, Purchasing Agent Employees' Personal Purchases	COPIES TO	Payroll Department
	This department has arranged the fol	lowing porsonal pu	rchases
	CLOCK NUMBER		
	PORCHASE ORDER		
	In the event of termination of this investigate to determine whether this its by the employee.	person's employment m has been paid for	t, please in full
14		Caescik	

MATERIAL REQUISITION

Materials withdrawn from stock-

# EMPLOYEE'S PERSONAL PURCHASE

The facilities of the Purchasing Department are used for procurement of tools required by employees in their work and for their personal account. Notice of such purchases is sent promptly to the Payroll Department to insure that proper arrangements for payment are made.



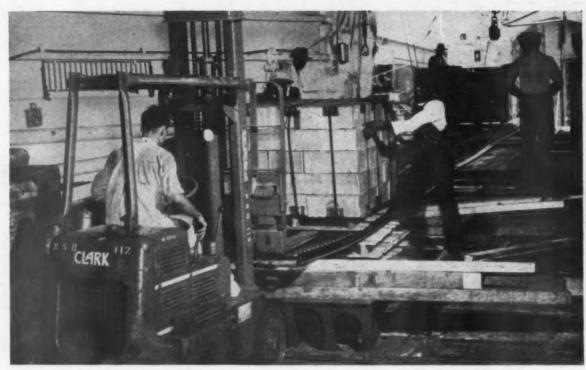
# RECORD CARD

Visible card records are maintained for each item purchased. Receipts are entered on the card. Rejections are noted on this same record when the signed original copy of the Receiving Report is received in the Purchasing Department. The total cost of each receipt is noted on the cards, as well as the unit price before the invoices are approved for the payment and transmitted to the Vouchering Section of the Accounting Department to be vouchered and checks drawn to the Vendor.

# room are accounted for by a material requisition, which shows the quantity issued and its disposition. | MATERIAL REQUISITION | MATERIAL

JANUARY, 1947

# PROGRESS IN PALLETIZING



The practical advantages of palletized loads were strikingly demonstrated during wartime

Bureau of Standards is working on plan for economical
 shipping practices in specific industries and also for more general industrial application and use

DURING the war, the simplification of packaging and standardization of shipping practices were strongly emphasized. The Navy went in heavily for pallet loading. Ship cargoes were standardized, and loads were designed for specific portions of ship holds.

Currently, the National Bureau if Standards is seeking similar benefits for civilian freight. The general acceptance of palletized loading during the war should make this means of handling freight a natural medium for shippers.

General approach of the Bureau of Standards is to obtain general industry acceptance of simplified palletized loading, with the use of standard size pallets. Through such acceptance by manufacturers, distributors and consumers, it is held that the same degree of economies will be possible in mass distribution as was achieved through mass production.

Initial steps are being taken in the field of groceries and packaged merchandise of a similar nature. For this type of merchandise, the Division of Simplified Practice of the Bureau of Standards has proposed a recommendation for a simplified palletized shipping practice.

The recommendation is aimed at bringing into general practice the use of unit loads as large as feasible in warehouse handling and in shipping of goods intact on pallets from the manufacturer's plant to the distributor. This would eliminate the avoidable waste inherent in piecemeal handling and rehandling of individual packages.

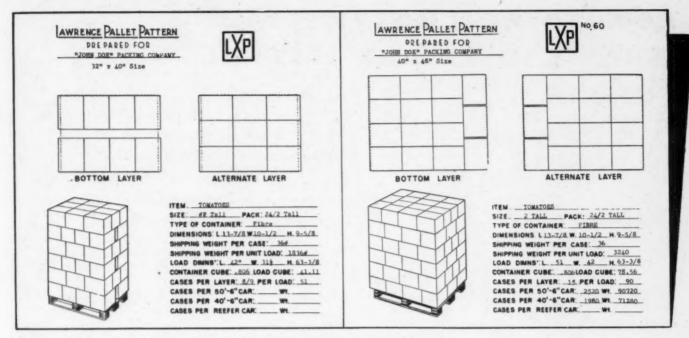
The Bureau of Standards recommendation was the outgrowth of the desire by members of the grocery industry to modernize their materials handling methods. They indicated their interest to the Bureau of Standards, and a conference was held for the purpose of considering the feasibility of establishing a sim-

plified list of pallet sizes for packaged merchandise in wholesale quantities. The conference was attended by representatives of industry, the Association of American Railroads, the American Trucking Association, the American Warehousemen's Association, the U. S. Armed Services, and several bureaus of the Department of Commerce.

Committees were subsequently appointed representing (1) transportation, (2) materials handling, (3) groceries processing and (4) groceries distribution, besides a central committee representing all groups.

Careful study, including consideration of almost 100 sizes listed in sample surveys, resulted in selection of two sizes, and these are now being recommended for general adoption.

The recommended sizes were selected for their adaptability to truck and freight car dimensions as well as warehouse requirements and



Patterns for efficient stacking of standard cases and cartons have been worked out for two pallet sizes —  $40'' \times 48''$  and  $32'' \times 40''$ ; extensive surveys indicate that the larger size generally works out to better advantage

sizes of containers which carry a major proportion of food tonnage.

In the recommendations, pallets are classified as "single-face" and "double-face", each embracing both of what are known as "flush-stringer" and "sling (stevedore)" types. Top and bottom are described as "faces".

"faces".

The "length" of the pallet, if stringers are used in the constructions are specifically aimed at pallets allel to the stringers; the "width" is the horizontal dimension at right angles to the length. Dimensions are stated in inches, the length before the width: thus the dimensions 40 x 32 refer to a length of 40 inches and a width of 32 inches.

The common 2--way wooden pal-

let permits entry of the lift-fork at either open end. The 4-way pallet, constructed with posts instead of stringers, permits fork-entry at any of the 4 sides, and is also referred to as 8-way, since fork-entry is possible at the 4 corners as well.

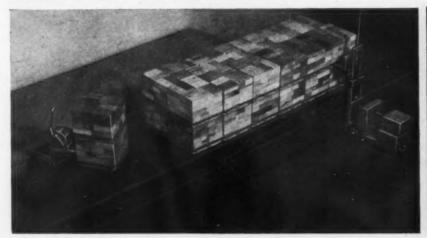
The manufacturers, distributors and users to whom the recommendations have been submitted for comment, are asked to indicate whether the proposals are practical, and if they intend to follow them.

While the current recommendations are specifically aimed at pallets for packaged groceries and similarly packaged items, the Bureau of Standards considers that a similar procedure, with the same objective, is feasible for any product leading itself to palletized shipping.

One major factor that is tending to delay acceptance of palletization for general use is the problem of ownership of the pallets—with the attending problems of how the accumulation of empties on the receiving end is to be handled, and how the return and exchange of pallets should be handled.

A solution that has been suggested is the rental of standardized pallets as a private enterprise, with users paying a nominal rental. For light loads, it has been suggested that an inexpensive one-trip pallet might be developed, the cost of which could be absorbed as a packing charge.

A great deal of research has been done with scale models simulating actual conditions of handling, storage and transportation





# HOW TO DETERMINE WHEN LABELS ARE ILLEGAL

This is a serious consideration for the manufacturer, distributor, and purchaser since it affects legal liability, fair trade practice, trade-mark infringement, and specific provisions of Federal law

• By Leo T. Parker

FEW purchasing agents have spare time and desire to accumulate legal knowledge through ordinary channels. However, it is best for readers to realize that modern higher courts render decisions in accord with modern principles, and that "hear-say" law is quite undependable. In other words, the "hear-say" law of mislabeling is not at all likely to assist readers to avoid expensive litigation, but to the contrary will thrive law suits.

# Distributor Is Liable

For example, a majority of purchasing agents honestly believe that only a manufacturer of mislabeled merchandise is responsible and liable. However, this is not so. The latest and leading higher court decision on this subject of law is Ahrens v. Moore, 178 S. W. (2d) 256. In this case it was shown that a purchasing agent purchased antifreeze in large quantities for his employer who subsequently sold and distributed the product in the original and sealed containers.

The anti-freeze solution disabled numerous automobiles. In fact witnesses testified that the anti-freeze solidified, corroded radiators, destroyed rubber hose connections, ate out the gaskets, and ruined the ignition. Numerous automobile owners filed suit against the distributor and retail dealer to recover damages. In holding the latter fully liable, the higher court said:

"Where a dealer purchases and sells a new and experimental product not in general use, . . . such dealer cannot claim immunity from liability from damages that follow such use."

An important point of the testimony which resulted in this distributor, and the retail dealers, being held personally liable for damage to the automobiles in which the antifreeze solution was used was the fact that the labels on the containers clearly stated the solution was not injurious to automobiles. Thus, the employer of the purchasing agent who, in good faith, purchased and distributed this very unsatisfactory



and injurious product was held liable in damages amounting to many times the price at which the product was sold. Quite obviously the distributor was legally entitled to recover damages and his losses from the manufacturer. However, in such cases seldom is the manufacturer financially able nor agreeable to bear the resultant losses.

# Circulars Violate Law

A modern court has held that descriptive circulars are within the meaning of the Federal Food, Drug, and Cosmetic Act.

For example, in United States v. 1, 146 Fed. (2d) 361, reported February, 1945, it was shown that the United States seized a large quantity of bottles each containing 400 tablets of a product labeled in part "Boncquet Tablets". The government contended that the tablets were "misbranded" within the meaning of the Federal Food, Drug, and Cosmetic Act.

During the trial clear proof was given that the alleged "misbrand-

ing" was on descriptive circulars which were shipped separately from the goods, and designed to be used by dealers in connection with the resale of the goods. It was contended by the defendant that these circulars, although incorrectly describing the tablets, were not a violation of the misbranding Act because they were not attached to the product.

It is interesting to observe that the higher court held in favor of the government. This court held that it was illegal, and within the meaning of the Federal Food, Drug, and Cosmetic Act to distribute circulars which incorrectly described the product, although separated from the packages containing the tablets.

# Witnesses Disagree

Modern higher courts consistently hold that general medical and pharmacological knowledge is a sufficient basis for any court to decide that a product or drug has no value in treatment of specified diseases. This is so although the manufacturer has numerous witnesses to testify that the advertising, labeling, or description is not false.

For illustration, in J. E. Todd, Inc., v. Federal Trade Commission, 145 Fed. Rep. (2d) 858, reported January, 1945, suit was filed against a drug manufacturer and distributors to compel them to cease advertising and representing through labels that the product has value in the treatment of arthritis, rheumatism or similar diseases.

Several osteopathic physicians testified that they had treated hundreds of patients with the product and that it had effected cures in severe cases of arthritis; and that its curative properties were due mainly to its olibanum content.

On the other hand, a chemist testified for the government that the product had at most a trace of olibanum. Also, three doctors of medicine, two of whom were specialists in the treatment of arthritis, testified that ingredients in the product, including olibanum, alone or in combination, had no value in relation to arthritis, neuritis or rheumatism.

The higher court considered all of this testimony and ordered the manufacturer and distributors to discontinue so advertising the product. This court said:

"The evidence is substantial though the experts who gave it had no clinical experience with the product and the opposing experts had such experience. General medical and pharmacological knowledge is a sufficient basis for such testimony."

# Claims for Olive Oil

According to a late higher court decision false advertising matter is equivalent to false labeling a product. Moreover, the only advertising and labeling that may be legally used in connection with olive oil is that it has "slight" value as a laxative.

For instance in Lekas & Drivas, Inc., v. Federal Trade Commission, 145 Fed. Rep. (2d) 976, reported January, 1945, it was disclosed that a company published advertising matter to the effect that olive oil would prevent, or tend to prevent, appendicitis, gall stones, and bladder infections. Also, these advertisements stated that the oil contained the vitamins A, E, and F in substantial quantities, and would cure skin irritations, neuralgia and rheumatism.



The Federal Trade Commission ordered the company to cease and desist from issuing these advertisements of the virtues of olive oil. The higher court approved the verdict, saving:

"According to the only witness sworn—a competent physician—all these claims were substantially false. It has no therapeutic value whatsoever except as a carrier for operative drugs; and except also that it possibly has some slight value as a laxative."

And, again see Charles Corporation v. Federal Trade Commission, 143 Fed. Rep. (2d) 676, reported September, 1944, where the testimony disclosed that a manufacturer advertised a cosmetic preparation as "Charles of the Ritz Rejuvenescence Cream".

A suit was filed against the manufacturer to stop further use of this name. Also, the Federal Trade Commission demanded that the manufacturer and its distributors stop stating in advertisements that the preparation "effects... the



petal-like quality and texture of youth", that it "restores natural moisture necessary for a live, healthy skin", and that it gives to the skin "a bloom which is wonderfully rejuvenating", and is "constantly active in keeping your skin clear, radiant, and young looking".

The Federal Trade Commission decided that such advertising falsely represented that the Rejuvenescence Cream will rejuvenate and restore youth, or the appearance of youth, to the skin. The manufacturer appealed to the higher court on the contention that no one knew the ingredients in the cream and could therefore not say nor testify that the claims are false.

Nevertheless, the higher court approved the commission's verdict, and said:

"The general medical and pharmacological knowledge of the doctors qualified them to testify as to the lack of therapeutic value of the cream."

# Scope of the Law

As previously explained, the Food, Drug, and Cosmetic Act makes it unlawful to mislabel certain designated products to be consumed by purchasers. A late higher court held that this law does not apply to products other than food and similar products.

For illustration, in United States v. Willard, 141 Fed. (2d) 141, reported June, 1944, it was shown that a suit was filed by the United States

against a company for condemnation of a quantity of mislabeled paper and cartons shipped in interstate commerce, on the ground that the labeling was false. The suit was based upon a violation of the Food, Drug, and Cosmete Act.

The higher court held that products of this nature are not subject to this Act.

## **Oysters Condemned**

It is well established law that the government may condemn spoiled or adulterated canned food under provisions of the Food, Drug, and Cosmetic Act. Moreover, it is not necessary that the *complete* shipment is bad, decomposed or adulterated.

For example, in C. C. Company v. United States, 147 Fed. (2d) 820, reported February, 1945, it was shown that a government agency condemned several shipments of canned oysters. The canner appealed to the higher court. During the trial testimony was given, as follows: In one lot of 168 sample cans 12 cans, or 7%, were definitely rotten and 4 cans, or about 2%, had some degree of decomposition; the remaining cans he classed as passable. 24 sample cans of another shipment of the oysters had about 24% bad; of another 48 cans 14% were rotten, and 4% slightly decomposed.

In view of this testimony the higher court approved condemnation of the three lots of canned oysters.



According to a late higher court decision food tested by "smell" is not positive that food is adulterated or decomposed.

For illustration, in C. C. Company v. United States, 145 Fed. (2d) 462, reported 1945, it was shown that Government agents sought to condemn an interstate shipment of canned oysters. The agents decided that the shipment was adulterated, unfit for food, and was ordered destroyed. The packer appealed to the higher court.

During the trial the Government

# DO YOU KNOW THE ANSWERS?

Is the distributor liable for manufacturers' claims when products are sold in the original containers?

Does the law concerning labels apply to circular matter that is not attached to the product?

To what extent is basic medical knowledge accepted as testimony as compared with testimony based on clinical use?

Can manufacturers' claims be successfully contested when the ingredients of a secret formula are not fully known?

How far can the requirements of the Food, Drug and Cosmetic Act be applied to products in other classifications?

Are statements on labels considered as separate guarantees or as part of a general claim comprising the whole label?

What is the legal liability of a distributor who represents himself as the manufacturer of a product?

Under what circumstances can competitive manufacturers use identical trade-marks or labels?

What is the basic test of whether a label constitutes misrepresentation or infringement?

Can a label that is wholly truthful as to the contents of a package nevertheless be in violation of the law?

offered the testimony of the Chief of the Bacteriological Division of the Food, Drug, and Cosmetic Administration; and a Chief Chemist. Both witnesses examined the oysters organoleptically, and smelled them. These men believed that the "smell" indicated that the oysters were decomposed, but the court refused to hold that this test in itself was valid.

# **Proper Labels**

Modern higher courts consistently hold that either a manufacturer or the distributor or the retail seller who falsely labels a product as safe when it is dangerous is liable to the person injured. However, the courts will consider the "whole" label and not merely a few words when deciding whether a product is falsely labeled.

For example, in Bender v. William Cooper and Nephews, Inc., 55 N. E. (2d) 94, it was shown that a woman suffered serious injuries to her eye when she was pouring a disinfectant into a can, and some of the disinfectant splashed in her eye. She sued the manufacturer and alleged that she was entitled to recover heavy damages because the can had a label thereon which stated

that the contents were "safe and non-irritating". The higher court refused to hold the user entitled to a favorable verdict, saying:

"The weakness of plaintiff's case is that she takes from the label a few words and bases her claim upon these words, ignoring all other statements on the label."

Also, see Carmen v. Eli Lilly and Company, 32 N. E. (2d) 729, where the higher court held that a purchaser is bound to "consider" the pamphlet accompanying the package as a whole, and not single out any rely upon a single word or line or paragraph to the exclusion of the rest.

On the other hand, see Cah v. Necto, Inc., 203 N. Y. S. 2, where the manufacturer of a hair dye advertised and represented to the general public by labels on the containers that it was suitable for use as a hair dye, and for application to the head.

A person used the hair dye as directed, and a few hours after applying it serious consequences followed. The court held the manufacturer liable.

And again in Kolberg, 93 Cal. App. 609, the higher court held that the manufacturer of a chemical inherently dangerous may be liable for injuries resulting from the use of such compound, although the injured person purchased it through a middleman.



Considerable discussion has arisen from time to time over the answer to the legal question, as follows: When and under what circumstances is an ordinary seller of merchandise liable in damages for injuries caused by such merchandise?

Ordinarily the manufacturer of a dangerous product who labels it as harmless is liable to the ultimate purchaser injured thereby.

Some courts held that a mere dealer who sells a dangerous and mislabeled product in its original package is not liable without proof of some real negligence on his part. But such a seller or dealer may hold himself out to his customer as being the manufacturer and if he does, he takes on a liability like that of the manufacturer.

For Example, in Commissioners v. City Chemical Corporation, 48 N. E. (2d) 263, it was shown that a person purchased the product from another company. However, before sending on the packages to the purchaser it removed the labels and pasted on each package another label containing the name of the City Chemical Corporation. It is interesting to note that the higher court said:

"... One who puts out as his own product a product manufactured by another is subject to the same liability as though he were its manufacturer."

Also, see Willson v. Faxon, Williams & Faxon, page 113 of 208 N. Y. In this case the higher court said:

"When the defendan' represented to the plaintiff by means of the statement contained ir, the label on the box that Faxon, Williams & Faxon were the manufacturers of the preparation, it rendered itself just as liable to the purchaser as the actual manufacturers would have been if the purchase had been made from them."

THE NEW ARITHMETIC IN STEEL

COPYRIGHT 1M8

LIGHTER SECTIONS

=LESS STEEL PER UNIT

=MORE UNITS PER TON

# THIS NEW ARITHMETIC SHOWS USERS OF HOT AND COLD ROLLED SHEETS HOW TO INCREASE PRODUCTION OF UNITS 33% WITH THE SAME AMOUNT OF STEEL

Here's a proved and practical answer to the problem of increasing production.

Make lighter sections of N-A-X HIGH-TENSILE steel. Use less steel per unit, get more units per ton. This low-alloy steel is so superior in tensile strength to carbon sheet steel that three tons will ordinarily do the work of four. Yet, with all its strength, N-A-X HIGH-TENSILE can be formed and drawn to intricate shapes because of its exceptional ductility.

You'll find other important advantages in N-A-X HIGH-TENSILE steel—excellent weldability, high fatigue- and corrosion-resistance, great impact toughness. This means

a better and more durable product . . . and simpler and less costly fabricating, finishing and handling operations.

Until our metallurgists and engineers know more about your particular products and production methods, we can't tell you exactly how much N-A-X will help you. We're ready to investigate at your request.



# **GREAT LAKES STEEL CORPORATION**

N-A-X ALLOY DIVISION . DETROIT 18, MICHIGAN UNIT OF NATIONAL STEEL CORPORATION

Sometimes even a "truthful" label is unlawful. For example, in the late case of Libby v. United States, 148 Fed. (2d) 71, the higher court upheld the United States government agents' condemnation of a product labeled as "San Tomato Catsup with Preservative".

This court upheld condemnation of the above mentioned product because the labels do not conform with the government regulations for catsup. Although the label truthfully states "tomato catsup with preservative", yet the court held that the product was misbranded and subject to condemnation.

# New Trade-Mark Law

Obviously, trade-marks are closely associated with labels. Therefore it is important to know that when two trade-marks so closely resemble each other in sound, meaning, and appearance, as to be likely to cause confusion in the mind of the public, both marks cannot be registered.



For illustration, in Magitex Company, Inc., v. John Hudson Moore, Inc., 154 Fed. (2d) 177, reported June, 1946, the testimony proved that a company had registered its Sportsman' trade-mark in 1941 for after-shaving lotion, hair lotion, and talcum powder. Later another company filed an application in the United States Patent Office for registration of the trade-mark "Huntsman" and said:

"The words 'Huntsman' and

"The words 'Huntsman' and 'Sportsman', because of the identity in their last five letters, have certain similarities in sound and appearance."

Also, see Lucky Heart Laboratories, Inc., v. Neumann, 154 Fed. (2w) 519, reported July, 1946. In this case the trade-mark consisting of the words "Lucky Heart" written across a heart-shaped design, intended for use on cosmetics, chemicals, medicines and pharmaceutical preparations, was denied registra-

tion as confusingly similar to the prior mark consisting of the words "Lucky Sweethearts" with a heartshaped design used on goods of the same descriptive properties. This court said:

"Trade-marks which so nearly resemble a registered or known trade-mark as to cause confusion or mistake in the mind of the public or to deceive purchasers shall not be registered."

# Trade-Mark Is False

According to a late higher court decision, a manufacturer who falsely prints a notification on his merchandise that his trade-mark is registered, cannot sue and recover damages for infringement of his trademark by a company which purchases a similar product and uses a label having a similar trade-mark.

For illustration, in Frase v. Will, 61 Fed. Supp. 763, the testimony proved that ten years ago a company sent an application to the United States Patent Office for registration of its trade-mark. Although the registration was refused, the company used the notification "Reg. U. S. Pat. Off." on its cartons and labels. With respect to the illegal use of this phrase on its cartons and labels the Federal Court said:

"This constitutes misrepresentation to the public and is sufficient to bar equitable relief."

In other words, the company was barred from sueing and recovering damages for infringement of its trade-mark. This is important because, under ordinary circumstances, the original user of a trademark may receive a favorable judgment against a competitor for infringement of his trade-mark, irrespective of whether or not it is registered in the United States Patent Office.

## **Brief Law**

According to modern higher courts, two or more different manufacturers may use the identical trade-mark on the same merchandise in different sections of the United States. In other words, although a manufacturer registers a trade-mark in the United States Patent Office, he cannot stop use of this trademark by a competitor in states where the registered owner of the trade-mark is unknown. Also, numerous manufacturers may use the identical trade-mark in the same territory on merchandise in different classifications.

Another important point of law is that the owner of a registered trade-mark may be held liable for infringing the same trade-mark used by another manufacturer in a territory where the latter had previously and originally established his business of selling and distributing his products. Moreover, the owner of a registered trade-mark, who seeks undeserved business, may be liable for "unfair competition" to another manufacturer although the latter has has registered the same or a similar trade-mark.

On the other hand, no trade-mark infringes another mark unless the *public* is likely to be confused. This is the true test for infringement.



"All she'll say is 'Guess who'!"

# Alemite offers EVERYTHING needed for INDUSTRIAL LUBRICATION

Shown on this page are just a few of the items that compose the huge line of Alemite Lubricating Equipment and Lubricating Systems for Industry. This equipment is the result of many years of experience dealing with industrial lubricating problems-experience that has made Alemite the world's leading specialist in lubrication.

# ALEMITE FITTINGS





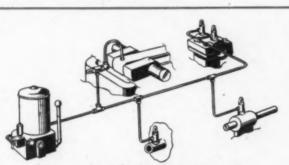


Whatever type of fittings your machines need-hydraulic, pin type dot, flush, button head, etc.-Alemite has them in all sizes and angles for every kind of industry.

# ALEMITE HAND GUNS



The complete Alemite line of hand guns includes push types and lever types, medium and high pressure, for volume delivery of fibrous, heavy and light-bodied greases.



# ALEMITE CENTRALIZED LUBRICATION SYSTEMS

These Alemite Systems handle oil or grease. They are designed for either manual or automatic operation. The feeder valves can either be mounted in or away from bearings. To lubricate a machine even while it is in operation, lubricant is introduced, at a safe, convenient, central point and forced through metal "arteries" to the feeder valve. These valves discharge a measured amount of lubricant to every bearing in the system. An indicator signals when the job is done. Hundreds of bearings can be positively, safely lubricated from one point. Human error is eliminated. Lubrication costs are reduced. Time, money and men are saved. Shutdowns are ended and production is increased. The over-all savings can enable you to amortize an Alemite Centralized System in as little as 3 months.

# THERE ARE FOUR ALEMITE SYSTEMS

Each is adaptable to almost any type of machine, large or small, new or old. Have one or all 4 systems demonstrated right at your desk with transparent working models.

# ALEMITE HAND PUMPS



All necessary equipment-gun loaders, gear pumps, volume pumps, etc.-for transferring, handling and applying all petroleum products. All Alemite equipment is ruggedly made for heavy duty work.

# ALEMITE PORTABLE LUBRICATION UNITS



The line includes the Alemite LUBRIKART—a complete, compact portable lubrication department on wheels for dispensing oils and grease.

Also, the Alemite Also, the Alemite electric power gunfor high pressure lubrication. 25-lb. capacity tank. Handles all types of light-bodied lubricants.



# ALEMITE POWER PUMPS



5344...is a vol-ume delivery air operated transfer pump for semi-fluid and light-bodied lubri-cants. Transfer from original 400-lb, drum.

Heavy duty bar-rel pumps for vol-ume delivery of lubricants from original drums. Models for high or low pressure-for handling oil



# ALEMITE

Industrial

LUBRICATION EQUIPMENT



1894 DIVERSEY PARKWAY

CHICAGO 14, ILLINOIS

# Purchasing Agents and their Assistants are invited to check the pre-paid "Ask Purch" postcards on Pages 19 and 20 for late catalogs and bulletins on New Products, Materials, Finishes, Equipment, etc.

# TWELVE SPEED BAND SAW



NEW Cerney twelve-speed band saw is announced by Ermac Co., 5531 South Vermont Ave., Los Angeles, 37, California. Twelve speed bands from 85 to 1750 f.p.m. give this saw

ability to handle any type of material, plastic, metal, or wood. The vibration-less saw is said to virtually double blade life. Construction offers safety in operation. Capacity of throat (Blade to frame) 17½". Blade length 98" to 102". Shipment made with or without 34 hp., 900 rpm motor.

COPPER SILVER TUNGSTEN ALLOYS NEW line of copper tungsten alloys, available in rod, bar and insert form, for projection and flash weld-

ing, die facing and inserts, electrical upsetting and forging dies, etc., is announced by Ampco Metal Inc., 1745 South 38th Street, Milwaukee, 4, Wisc. Also announced are two silver tungsten alloys in rod, bar or insert form, for circuit breaker contact material and arcing tips, circuit breaker facing material and special welding applications.

# FLAT LAPPING MACHINE

NEW machine designed for high speed precision flat lapping of single parts or production runs of hardened steel, quartz, glass and parts is announced by Spitfire Tools, Inc., 2933 N. Pulaski

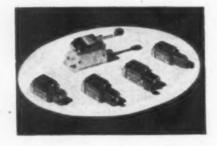


Rd., Chicago 41, Ill. Surface finish as fine as 2 rms micro-inches are said to be possible. Operator manually directs motion of single piece of work on revolving circular lapping plate. Standard or special holders available for large production runs.

WELDING WIRES AND TAPES AUTOMATIC arc welding wires and tapes for applications ranging from thin gauge sheet metal forms to

boilers, axle housings, etc., are announced by Air Reduction Sales Co., 60 East 42nd St., New York, N. Y. New line includes five knurled type wires and five tapes all for flat position operation, recommended for low-cost, uniform, automatic welding. They are manufactured in several diameters and are designed to meet the general requirements of high-speed production welding. Automatic wires, may be used separately or in conjunction with the tapes.

# OILPROOF SNAP-ACTION LIMIT ELECTRIC SWITCHES



NEW small oilproof, snap-action, track-type switches for machine tool or similar applications are announced by Apparatus Dept., General Electric Co., Schenectady, N. Y. Switches can be used in a variety of operations and contain single-pole, double-throw, self contained, snap-action control switchette.

NEW COPPER OXIDE RECTIFIERS Copper-oxide rectifiers for battery chargers, said to give maximum output in minimum space, are an-

nounced by Bradley Laboratories, Inc., 82 Meadow St., New Haven, Conn. Rectifiers are rated for 2, 3, and 4½ volts dc output, with dc up to 1½ amps. Lead wires are presoldered, and other types of terminals specially designed, to prevent overheating during assembly.

# SELF-SEALING TEST PLUG

HYDRO - Matic self-sealing test plug for use in closing openings in tanks, boilers, or other vessels requiring hydrostatic or pneumatic internal pressure tests, is announced by Mechanical Prod-



ucts Corp., 168 North Ogden Ave., Chicago, 7, Ill. Plugs available for standard pipe openings from ½" to 2" sizes, and applicable whether air, water or oil is used. Suitable for testing pressures up to 500 psi. Maker states they can be inserted or removed within one or two seconds.

EXTREMELY FAST BAKING FINISHES SYNTHETIC enamels and clear finishes that bake in a matter of seconds, are announced by Maas & Wald-

stein Co., Newark, N. J. The new products known as Flashdur are designed to help reduce production schedules by offering hard, tough, extremely fast baking finishes for metal products. Flashdur is available in clear, black, white and most colors.

# CHANNEL-BAND COUPLING

NEW channelband coupling designed to join beaded ducts and adaptable to high temperature or high pressure ducts, is announced Marman Products Co. Inc., 940 West Redondo Blvd., Inglewood,



Calif. Couplings available in stainless steel and aluminum alloy, provided with single or multiple take-up latches, and can be supplied as complete circular couplings, in segmented sections (for small diameters) and in elliptical, rectangular, etc., shapes. Catalogue available.

(Please turn to page 150)



# "Sure we've got Wrought Iron Welding Fittings!"

WHEN you need wrought iron welding fittings you really need 'em! A good way of getting them is to get the Tube Turns distributor on the phone.

He handles the most complete line of welding fittings on the market, represents the one source of supply on which you can depend for all welding fitting requirements.

\* Tube-Turn wrought iron welding fittings are a standard part of the line as

well as stainless steel, copper, aluminum, monel metal, inconel, nickel, carbon moly, chrome moly, brass. Tube-Turn welding fittings in these metals are available in all necessary weights, in a wide range of analyses, types, and sizes. The complete line of Tube-Turn welding fittings and flanges covers more than 4,000 items. Many of these are in stock with foresighted Tube Turns distributors, in every strategic industrial

center, who built up a supply when this was still readily possible.

Write for the name of your nearest Tube Turns distributor and facts about how the fittings that become part of the piping serve others in your industry.

TUBE TURNS (Inc.) LOUISVILLE 1, KENTUCKY. District Offices at New York, Washington, D.C., Philadelphia, Pittsburgh, Cleveland, Detroit, Chicago, Houston, San Francisco, Los Angeles.

TUBE-TURN tt Welding Fittings and Flanges



ONE SOURCE OF SUPPLY FOR ALL WELDING FITTING REQUIREMENTS

## INDUSTRIAL COMPRESSORS

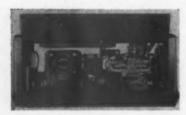


NEW line of industrial "departmental" compressors for individual plant departments and replacements for large central compressor systems are announced by Davey Compressor Co., Kent, Ohio. Units are available in 60, 105, 160, 210, 315 cfm sizes. Under departmental system, separate compressors of proper capacities are installed where needed instead of a central system. Several may be connected to provide power reserve for overpeak loads.

FACILITATES INDUSTRIAL FLUIDS HANDLING PORTABLE jet pump, called the Accel-O-Rate, for the transfer of liquids, draining of tanks and vats, re-

moval of water from flooded areas, and similar applications, is announced by Derbyshire Machine and Tool Co., Jet Pump Division, 5219-L Belfield Ave., Philadelphia, 44, Pa. Pump is available in three models, capacities ranging from 85 to 350 gpm and is said to operate in any position. It has no moving parts and can handle safely fluids containing dirt, sluge, or other solids. It can be used with centrifugal pumps to increase both the vertical lift (to over 100 feet) and the horizontal reach (to over 300 feet).

# GAS-ELECTRIC ARC WELDER



COMBINATION gas-electric drive 300 amp arc welder is announced by Hobart Bros. Co., Hobart Square, Troy, Ohio. Welding machine on portable mounting consists of standard 300 amp generator and 20 hp induction motor mounted on a heavy solid shaft coupled to a Chrysler 6-cylinder industrial enrine through an over-running clutch, enabling the gasoline engine to drive the arc welder positively. When generator is driven by the electric induction motor, clutch automatically over-runs, or freewheels. Induction motor is wound for dual voltage 220/440. Change-over is accomplished by throwing a double-throw knife switch either to the 220 v or 440 v position.

GLASS CLOTH FIRE BLANKET NEW type fire blanket, 60 by 80 inches, made of high tensile strength glass cloth, impregnated

cloth, impregnated on both sides with synthetic rubber, is announced by U.S. Rubber Co., New York, N. Y. Blanket is said to be flame-proof, heat, chemical and water resistant, mildew proof, non-shrinkable, non-stretchable and unaffected by heat or cold. It may be used as emergency wrap, auxiliary fire extinguisher to put out flames from vents, manholes, tanks, etc.; fire shield to enable fire-fighters to approach within effective range of fires; welding screen; and as a salvage blanket.

# ALL STEEL SQUIRREL CAGE INDUCTION MOTOR



SQUIRREL cage induction motor, of all steel construction (frame, feet and brackets), 35% smaller than its predecessor, is announced by Westinghouse Electric Corp., Pittsburgh, Pa. In addition it is lighter, more rigid, can withstand greater impact, and is available in drip-proof, splash-proof, and fan-cooled construction. Features are: frame rolled from steel plate as thick as it would be if cast iron were used; all-welded construction; selfsealed bearings that provide lubrication for five years; and interchangeability of parts. Motor is available in three sizes from 1/2 to 20 hp; in voltages of 208, 220, 440, and 550; in two and three phase; in frequencies and speeds of 60 cycle- 3500, 1750, 1150 and 865 rpm, of 50 cycle- 2920, 1450, 965 and 720 rpm, and 25 cycle- 1450 and 725 rpm; and in NEMA standard dimension frames 203 to 326.

SINGLE COAT MOTTLED FINISH NEW coating which produces a lustrous hammered effect in a single spray-coat application is announced

by Maas & Waldstein Co.. 438 Riverside Ave., Newark 4, N. J. "Motletone" may be used on metal equipment, molded plastic products and on wood when a metal-like hammered finish is desired. It is said to hide weld dimples, scratches and other small defects and is recommended where low-cost finishing is required. Available as air-dry or baking finish.

## ROTARY HAND PUMP

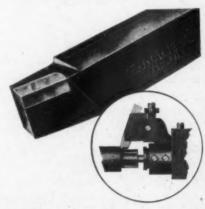


NEW rotary hand pump is announced by Industrial Pump Division, Bowser, Inc., Fort Wayne, Indiana. Pump has capacity of 10 gpm at normal cranking speed, is of vane type with aluminum rotor, graphite carbon vanes, and stainless steel springs. Suction discharge parts are threaded for ¾" iron pipe. Rustproof working parts are said to eliminate "freezing" action of rust due to condensation within casing when pump is used infrequently. Pump available as "pump only"; as a barrel pump with suction pipe, bung attachment and spout; and as complete refueling unit with discharge pipe, combination hose holder and vacuum breaker, gasoline hose and aluminum nozzle.

NEW CONTINUOUS FREEZER PUMP NEW pump for use with continuous freezer, claimed to maintain volumetric efficiency longer against wear

caused by sugar, chocolate and other solids in ice cream mix, is announced by the Marco Co., Inc., Wilmington, Dela. Other features include maintenance of uniform delivery to insure freezer production efficiency. Pump is said to meet sanitary health law requirements.

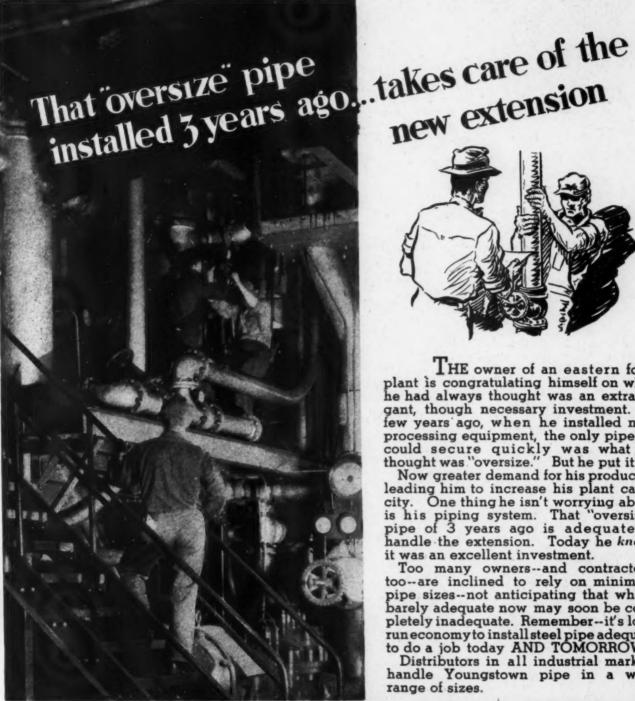
## KNEE-TYPE TOOL BITS



NEW line of Kennametal-tipped tool bits for use in knee attachments of turret lathes for machining steel, cast iron and non-ferrous metals is announced by Kennametal, Inc., Latrobe, Pa. Bits available in three sizes: ½" sq. x 3½" long; 5%" sq. x 4" long; and ¾" sq. x 4½" long.

(Please turn to page 152)

# INSTALL STEEL PIPING ADEQUATE FOR TOMORROW'S NEEDS





THE owner of an eastern food plant is congratulating himself on what he had always thought was an extravagant, though necessary investment. A few years ago, when he installed new processing equipment, the only pipe he could secure quickly was what he thought was "oversize." But he put it in.

Now greater demand for his product is leading him to increase his plant capacity. One thing he isn't worrying about is his piping system. That "oversize" pipe of 3 years ago is adequate to handle the extension. Today he knows it was an excellent investment.

Too many owners--and contractors, too--are inclined to rely on minimum pipe sizes--not anticipating that what's barely adequate now may soon be com-pletely inadequate. Remember--it's long runeconomy to install steel pipe adequate to do a job today AND TOMORROW.

Distributors in all industrial markets

handle Youngstown pipe in a wide range of sizes.



# OUNGSTO

THE YOUNGSTOWN SHEET AND TUBE COMPAN GENERAL OFFICES - YOUNGSTOWN 1, ONLO

Export Offices - 500 Fifth Avenue, New York City

Manufacturers of ARBON - ALLOY AND YOLOY STA

Pipe and Tubular Products-Sheets-Plates-Electrolytic Tin Plate Coke Tin Plate.

Conduit - Bars - Rods - Wire - Cold Drawn Carbon Steel Rounds - Tie Plates and Spikes-

# INDUSTRIAL FIRE FIGHTER

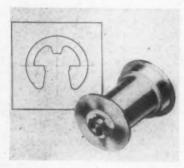


COMPACT four wheel trailer fire extinguishing unit for outdoor industrial fire hazards is announced by Cardox Corp., Chicago, Ill. Unit has a capacity of 750 lbs. of low pressure liquid CO<sub>2</sub> and 32 gal. of mechanical foam solution. Two nozzles have combined discharge rate of 400 lbs. of CO<sub>2</sub> per min. Foam gun discharges at rat of 18 gpm. Step plates on trailer accommodate three firemen.

"SOFT" NYLON-FACED HAMMER NEW hammer for machine shop, repair shop, woodworking and aviation use; etc., is a "soft" nylon-faced

hammer developed by Danielson Mfg. Co., Danielson, Conn. Manufacturer states nylon hammer wears longer, will not chip or mushroom, has no rebound, is resistant to fire, chemicals and oils, and does not heat up or change shape under continued use. Nylon faces are replaceable; lock in place by a patented device. They are available in 2/3 pound and 2 pound weights.

# NEW TRUARC RETAINING RING



NEW "E" shaped ring for small shafts. is announced by Truarc Sales Division, Waldes Kohinoor, Inc., 47-10 Austel Place, Long Island City 1, N.Y. Providing unusually large and uniformly protruding shoulder on shafts of 3/32" dia. and over, the new ring sprung into a comparatively deep groove is designed to withstand considerable thrust loads. Installation requires no special tools. Ring is said to have wide possibilities for application in all types of business machines, radios, household appliances, chains, clevis pins, etc. It is ideally suited for application where shaft is inaccessible in a longitudinal direction. Data sheets and samples available.

# FLUORESCENT LAMP RESISTOR



DEVELOPMENT of Fluorescent Lamp Resistors of the plugin type (Bulletin 26) is announced by Ward Leonard Electric Co., Mt. Vernon, N. Y. Resistors are designed for use with single lamp portable fixtures for operation

of fluorescent lamps, up to and including a 20 Watt (T 12) 24 inch size, on direct current. The wire bound resistor is mounted in a small perforated enclosure 15%" in diameter by 1-13/16" in height with spring pressure prongs on one end and receptacle on the other. Resistor operates as adapter unit and requires no wiring. It is connected in series with the auxiliary d-c ballast.

## ROLL THREAD COMPARATOR



SMALL screws with diameters ranging from .060" to .216" and threads of 80 to 28 per inch, N. F. 60°, can be easily and accurately inspected with the new Pressure Control Model C Roll Thread Comparator announced by Pratt & Whitney, Division Niles-Bement-Pond Co., West Hartford, Conn. Model C Comparator uses the S-J gaging principle with a Pressure Control feature which relieves the operator of the responsibility of judging borderline cases. Accurate and sensitive pressure control is provided by a signal light which instantly shows the result of full "go" and "not go" functional check on pitch diameter, minor diameter, lead and angle.

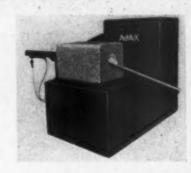
# SWISS TYPE CONVERTER

NEW Swiss type converter, to make any lathe or similar tool into a quantity production machine for multi-diameter parts, is announced by Oxford Engineering, Inc., Oxford, Mich. Converter can be used



with any old or new standard lathe. Converter is easily removed so lathe can be used for other work. It can produce any part from a needle point to ½" OD and from ¼" length to six feet. Production is said to be fast and accurate with any kind of cold finished stock, including stainless steel, brass, etc. Literature available.

# STEEL SLUG INDUCTION HEATER

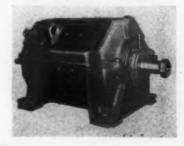


NEW Ajax-Northrup induction heater with automatically timed pneumatic feeding device, for continuous, automatic heating of steel slugs or forging blanks prior to forging operations, is announced by Ajax Electrothermic Corp., Trenton, N. J. Production rate with slugs 3½" dia x 1½" long is 350 per hr., each slug uniformly heated to about 2200°F. Power source is a 200 kw motor-generator set, operating at about 1000 cycles per second.

CAR3IDE-TIPPED MASONRY DRILLS ROTARY - type carbide tipped masonry drills for drilling in all nonmetallic materials such as brick, ce-

ment, marble, slate, concrete, tile, stone and glass, are announced by Chicago-Latrobe Twist Drill Works, 411 West Ontario St., Chicago, 10, Illinois. Drills are available in sizes ranging from 3/16" diameter. All are furnished oversize to provide clearance in installation of anchors, expansion bolts, toggle-bolts, etc., and are available in three different sets. Printed matter available.

# ARMORED MILL MOTORS



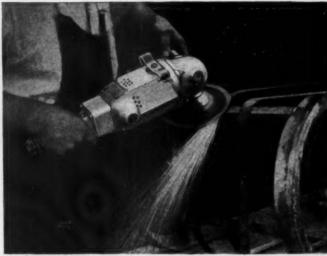
NEW line of d-c armored mill motors, Type MD-600, is announced by the Motor Divn. of the General Electric Co. The new motors will ultimately replace the GE type MD-400. Featuring increased horsepower in smaller space, they have been designed in ratings from 5 to 200 hp. Adaptability of the frame to various enclosures allows easy change-over between protected, totally-enclosed, or separately- ventilated types. Reduction in size per horsepower has been accomplished by better utilization of space inside the machine, and the use of glass insulation. Additional information is given in GEA-4654. Apparatus Department, Schenectady, N.Y.

(Please turn to page 154)

# Black & Decker Sanders Up Many Jobs Speed Up Maring Jobs Surfacing Jobs



Speeds Wire Brushing—With "Whirlwind"\* Wire Cup Brushes, the Sander takes off old paint, rust, scale . . . cleans castings, tanks, boilers, vats, sheet metal and soldered joints.



Sands Any Surface—With abrasive discs, a Black & Decker Portable Electric Sander speeds up sanding of any surface from fast metal removal to satin-smooth finishing.



Grinds Any Metal—With saucer or cup-type grinding wheels, the Black & Decker Sander removes metal; smooths welds and casting ridges; grinds off old rivets, studs and bolts; sharpens stationary machine blades.



Planes and Gouges Wood—With rotary gouging and planing heads, it shapes and semi-finishes lumber, working faster than jack plane and adz...removes stencil and brand marks from barrels and boxes.



See Your Black & Decker Distributor for helpful information on Sanders, Grinders, Drills, Saws and many other Portable Electric Tools for production, construction, maintenance and repair. For your free copy of our complete catalog, write today to: The Black & Decker Mfg. Co., 664 Pennsylvania Ave., Towson 4, Maryland.





# AIR AND WATER GUN



LIGHTWEIGHT air hand water gun, controlled by finger-tip lever, designed for high-pressure rinsing and removal of loosened dirt and grease in inaccessible parts of equipment and machinery, is announced by Turco Products, Inc., 6135 South Central Ave., Los Angeles, Calif. Gun operates on regular air and water pressures, connects to standard fittings. Finger-tip lever eliminated valve adjustments.

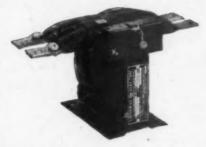
# INTERCHANGEABLE HEAD RIVETER

PNEU-SPIN riveter, with four interchangeable heads, 3/32", 5/32", ½" and 5/16" capacities, is announced by Schlack Mfg. Co., 13255 Birwood Ave., Detroit, 4 Mich. Operating



4 Mich. Operating on 75 to 80 lbs. air pressure, heads impart 4000 to 6000 ¼" maximum blows per minute to rotating spindle and peening tools which form round, oval and flat heads; peen shafts, pins and studs; flare small tubes and brass connectors; furl shoulder bushings, bearing housings, and light tubes to sheet metal or plastics. Riveter assembles metal, wood, fibre, die cast, porcelain and plastics. Overall height 65". Bulletin #46 available.

# 1200 VOLT INDOOR TRANSFORMER



1200-VOLT indoor current transformer designed for metering service on threewire, single-phase indoor currents is announced by Meter and Instrument Division, General Electric Co., Schenectady, N. Y. Designated Type JL-6, transformer is available in primary current ratings 10//10 to 400//400 amperes and has been assigned a 30-kv full wave rating. Spacing between primary terminals is 1½" for all current ratings, which is said to be adequate even for oversize sable lug connections.

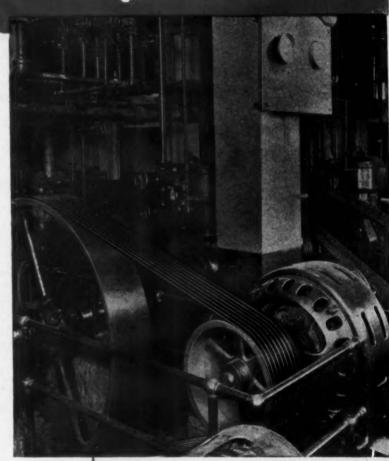
(Please turn to page 156)

# WHY DAYTON V-BELTS Save Space

# 5 Compressors NOW...in Space Formerly Taken by 3

In 1935, the superintendent of a large ice cream manufacturer found it necessary to install two additional compressor units in an already overcrowded power plant. He did it by replacing the original drives on three existing compressors with Dayton V-Belts. Because of the much shorter distances required from the center of the motor pulleys to the center of the compressor pulleys, enough floor space was saved to enable the superintendent to install the additional two much-needed machines! Further savings were made by using the large flat pulley of the original drive.

Dayton V-Belts save space because they have tremendous gripping power . . . need to contact only one-third of the pulley for efficient operation. Because of the smaller contact area required, machine and motor can be placed closer together, providing extra space for more machinery, wider aisles or for office or storage space. Space saving is one of many reasons why Dayton V-Belts can help solve your power transmission drive problems efficiently and economically. Get the full story from your Dayton Distributor. Call him today.





Dayton V-Belt Drive

THE DAYTON RUBBER MANUFACTURING COMPANY

Main Office and Factory: Dayton 1, Ohio

Branch Offices: Atlanta - Boston · Chicago · Cincinnati · Cleveland · Dallas Detroit · Los Angeles · Minneapolis · New York · Philadelphia · St. Louis In most cases, the distance required between the centers of the machine and motor pulleys for a Dayton V-Belt Drive is just about half that required for other types of drives.

Dayton Rubbert

THE WORLD'S LARGEST MANUFACTURER OF V-BELTS



· Hiding behind a barrel is in direct contrast to the safest technique we know . . . using CESCO safety equipment. • Come into the CESCO plant and you'll see the research staff putting CESCO safety devices through their paces-constantly running tests, checking design features and boosting maximum standards for CESCO products. . Comfort features get detailed attention too, on the proved theory that the more comfortable the safety device the better use it will get. . Thus, CESCO combines quality and comfort in safety equipment which will be properly used. That adds up to a most effective safety program for you.

# CHICAGO EYE SHIELD COMPANY



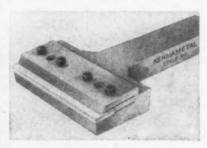
# ONE-MAN HAND TRUCK

THIRTY-pound hand truck for one-man-use in moving heavy awkward-to-handle products, called Magnelux Zephyr II, is announced by Magnelux Inc., 317 East 4th Street, Los Angeles, 13, Calif.



Made of cast magnesium alloy, truck is 18" wide, 56" high, has galvanized rust-proof steel nose and 5" x 134" magnesium alloy wheels with moulded rubber treads. Belt and locking device hold load firmly. Face of truck is covered with heavy-duty felt. Truck may be skidded along when lying flat.

# ROLL TURNING TOOLS



BROAD-nose tools for turning cast iron rolls up to 90 Scleroscope are announced by Kennametal Inc., Latrobe, Pa. It is said a major saving in production costs may be effected with these tools. They comprise solid Kennametal K6 blades, securely held in position on an accurate surface of the supporting shank by a clamp and serrated advanceable back-up plate. Blade has four cutting edges that may be used in succession before any sharpening is required. It can then be reground repeatedly (long sides only) and advanced into cutting position, until 3/3 of the Kennametal has been used. Tools are available in 4", 6", 8", 10" standard cutting widths. Supplement No. 1 to catalog 46 available.

# V-EIGHT GRINDING WHEEL



V-EIGHT grinding wheel announced by American Emery Wheel
Works, Providence,
R. I., is said to
hold its corners
even under extremely heavy cuts
and to perform efficiently in dish and

cup shapes. Structure gives maximum air cooling for dry grinding, and open cells carry extra coolant when wet grinding. Maker states that more metal is removed in less time, that the wheel is maintained with less dressing, and that it will satisfactorily grind Hi-chrome die steel.

(Please turn to page 158)

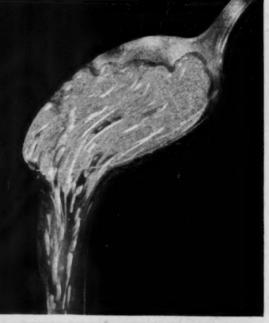




UTICA Tools are now better and stronger than ever because of electronic hardening of the cutting edges developed during the wars. This means still more tools mileage. ... UTICA Theis and Adjustable Wrenchware sold through recognized to beers.



FROM **GREASE THAT FLOWS** LIKE HONEY







It is a fact that certain Shell greases for high-speed bearings are more fluid than heavy grades of lubricating oil . . . and that other Shell greases are solid "block" lubricants that are sliced up in bricks to be placed in the journals of heavy machinery.

It is also a fact that fluidity is just one of the factors a Shell Lubrication Engineer takes into account when he selects lubricants for your equipment. His stock in trade is a lubricant to meet your every need . . . his function is to select the right one for each job.

From his experience, the Shell Lubrication Engineer can help you when something's wrong and needs quick attention-and he can help prevent trouble by analyzing your equipment right now to see that you are getting the benefit of all that's new in lubrication.

Call him any time. He's a good man to know.

SHELL OIL COMPANY, Incorporated
50 West 50th Street, New York 20, New York

100 Bush Street, San Francisco 6, California





CONVENTIONAL TRIPLE MAGNET CHAIN

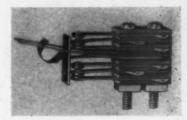
Chain stays on the job two to three times longer than conventional magnet chain. This improved chain eliminates twisting and kinking... the cause of excessive wear in ordinary magnet chain. It is built of TAYLOR MADE Alloy Steel Chain to give greater resistance to shock...grain growth and work-hardness—eliminating periodic heat treatment.

Such safety and economy has never before been available to users of magnet chain. This T M chain is a real contribution to material handling. Write the factory for more details.

S. G. TAYLOR CHAIN COMPANY DEPT. P-1, BOX 509, HAMMOND, INDIANA

# TAYLOR MADETHE BEST BY TEST SINCE 1873." Chain

# TWO POLE OPEN BLADE SWITCH



COMPACT snap-action open blade switch for 2 pole applications is announced by Acro Electric Co., 1331 Superior Ave., Cleveland, 14, Ohio. Constructed with patented Beryllium Rolling Spring it is made with both single and double throw contacts. Standard operating pressures 3 to 5 oz. Furnished with terminals as illustrated, or at the rear. Dimensions 2½" x 25/32" x ½". Rated at 15 amps., 125 volts a-c movement differential of approximately 1/16".

# DIE CASTING MACHINE



NEW model fully automatic high speed, low cost, die casting machine for production of zinc, lead and tin castings is announced by Light Metal Machinery, Inc., Penton Building, Cleveland, Ohio. Patented cycling

mechanism completely eliminates between cycle delays, and manufacturer states that machine's actual production rate averaged better than 90% of theoretical speed in time study. Machine may be operated at 240,330,520 and 720 shots per hour. Shot capacity 16 oz; casting area 30 sq. inches. Use of single cavity dies cuts die cost 50 to 90%.

# ALL STEEL SKID PLATFORM



ALL steel skid platform for use on hand and electric lift trucks is announced by Market Forge Co., Everett, Mass. Platform is made on any required size and for any specified lift truck. Medium gauge high-tensile steel is used for deck panels, providing continuous smooth platform surface. All welded construction; no bolts or rivets used. Platforms can be entirely galvanized, or made of stainless steel or aluminum. They are available with welded corner stake sockets.

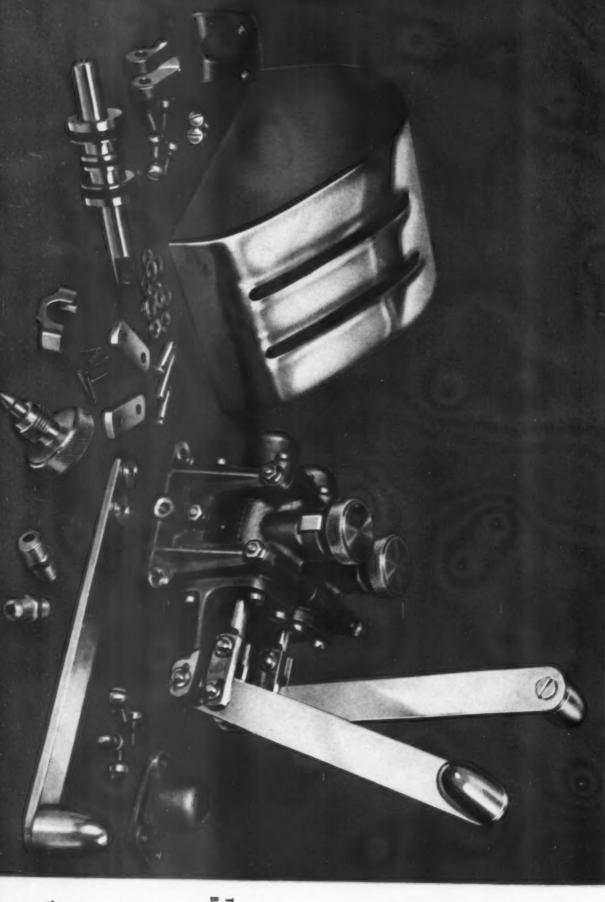
(Please turn to page 161)





# ANACONDA COPPER ALLOYS

extensively used in constructing the Elliewood Marine Control





**Sheet Brass Housing** chromium plated



Brass Screws, Washers and Cotter Pins



Piston, chromium plated Tobin Bronze\* Shaft and



**Phosphor Bronze Tension Spring** 



**Screw Machine Parts** Free Cutting Brass



Brass Handle, chromium plated **Tobin Bronze Lever and Turned** 



**Tobin Bronze Needle Valve** 



Links, chromium plated Tobin Bronze Pins and

"Reg. U. S. Pat. Off.

THE AMERICAN BRASS

Waterbury 88, Connecticut General Offices: COMPANY

# FOLDING SAFETY SPECTACLE



LIGHTWEIGHT folding safety spectacles with clear or green-tinted shatter-proof Impax plastic lenses are announced by Watchemoket Optical Co. Inc., Providence, 3, R. I. Semi-rimless type frame is hinged and folds at the bridge but locks automatically in open position. Hollow stainless-steel temple available in 3 lengths. Telescopes to ½ normal length when unit is folded up. Entire goggle folds to size of packet of cigarets. Lenses are interchangeable.

# LABORATORY BOX FURNACE



BOX furnace designed to meet modern laboratory requirements for high, automatically controlled temperatures, is announced by Industrial Heating Division, General Electric Co., Schenectady, N.Y. Furnace, suitable for operations up to 3100° F., can be used for melting and bright annealing of metals, sintering of powdered metals, reduction of metallic oxides, ceramic firing, and copper and silver alloy brazing of metals. To protect heating units against oxidation furnace is limited to operations which can be performed in a protective atmosphere. Heating units, molybdenum rods, are rated 20 kw, 65 volts single phase at 3100° F. Heating chamber, 4" wide, 41/2" high, 25" long, is lined with refactory brick backed by heat insulation.

(Please turn to page 164)

# That Microbe GOES OR / DO BOSS!



Strong talk from a worthy working girl to Mr. Head Man!

But then—whether she expresses her sentiments aloud or not—that's just about how strong her attitude is on the subject of cleanliness.

The straight-from-the-shoulder truth is—many an employee feels there isn't room enough in an organization to hold both herself and a neglected, unsanitary washroom.

That home-clean, spic-and-span washrooms inspire permanent loyalty, help prevent the spread of disease, reduce absenteeism and increase efficiency accordingly . . . is no idle washroom chatter. Surveys staunchly back up the facts.

Employees, after all, are as humanly sensitive to their surroundings as the "Boss" himself.

And that's good enough reason why so many alert employers the country over are "heading West"... meaning the use of West Washroom Service. Provenly the West Way is one way of keeping company morale high by keeping the "germ count" low.



**Products That Promote Sanitation** 

42-16 WEST STREET LONG ISLAND CITY 1, N. Y.

\* BRANCHES IN PRINCIPAL CITIES OF THE UNITED STATES AND CANADA

CLEANSING DISINFECTANTS - INSECTICIDES - KOTEX VENDING MACHINES PAPER TOWELS - AUTOMATIC DEODORIZING APPLIANCES - LIQUID SOAPS



It's sheer performance—not casual selection — that makes "SM" first choice for welding automobile hoods. Comparative tests, made by a leading builder of quality cars, again showed "SM" first in speed, quality and appearance.

On jobs like this, welds have to look right as well as be right. Hoods are formed from two halves welded along the top. The slight crown of the bead minimizes finish grinding and eliminates additional surface preparation.

"SM" provides every desired operating characteristic. It's fast — "SM" is a true production electrode. "SM" eliminates the hazard of "burn-throughs" and "suck-ins." Slag removal is easier.

5M"

FOR SHEET METAL WELDING

(CLASS AWS-ASTM-E6013)

"5M"

TRIAL OFFER

Try this remarkable electrode in your own shop, on your own work — without cost or obligation. Simply write for a free trial package of "SM." You, too, will agree that "SM" is America's outstanding electrode for sheet metal welding.

AC DC

AC OR DC — Yes, whatever your machines, AC or DC, whatever your work, "SM" performs perfectly. It's the true production electrode for welding thin gauge metals.



LOWER PENETRATION — You get less penetration—the desired amount of penetration with "SM." Gone are your troubles of "burn-throughs" and "suck-ins." Use "SM" on metals down to 20 gauge.



"DROP OFF" SLAG — A really unusual and important feature of "SM" — main reason why one of America's largest light gauge fabricators uses it exclusively. Slag removal is no problem with its "drop off" characteristic.

" gives you-

CONVINCE YOURSELF-TRY "SM"

SPRAY TYPE ARC—Specially developed coating gives "SM" ideal concentrated spraying action for faster, smoother, stronger welds on all positions.

OTHER POPULAR PAH MILD STEEL ELECTRODES

There's a production approved electrade for every requirement in the complete P&H line. Below are just a few. Get complete information from your P&H representative or write us.



REDUCED SPATTER LOSS—The extremely small amount of spatter greatly increases welding efficiencies of "SM."



ALL-POSITION — Whatever you're fabricating — auto or truck bodies, tanks, furniture, window frames, etc., you can weld them in any position. All - position welding rounds out "SM's" versatility — makes it an electrode you can't afford not to use.



FLAT, THIN SEAD — Another important advantage: its very smooth, flat bead. Say goodbye to "humped" or convex bead that requires expensive grinding, careful finishing.

"AP" - AWS - E-6010 (DC, Reverse Polarity)

RNISCHFEGER

WELDING ELECTRODES - MOTORS - MOISTS PEH ELECTRIC CRAMES - ARC WELDERS - EXCAVATORS

"AC-1" - AWS - E-6011 AC and DC

WELDING

ELECTRODES
4577 West National Avenue
Milwaukee 14, Wisconsin

"AC-3" - AWS - E-6013
AC and DC

"FW" - AWS - E-6020 AC and DC

- E-4020 DC

DH-2" - AWS - E-6020 AC end DC "CM-50" - AWS - E-7011 AC end DC "AW-4" -

Also a complete line of P&H Electrodes for stainless and alloy steels, as well as for hard surfacing.

AMERICA'S MOST COMPLETE ARC WELDING SERVICE.



DC



Welding Electrode



Welding Positioners



Welding Production Control Systems



**Electric Hoists** 



Electric Cranes

# ARE YOU

# STUCK FOR PARTS?

ARE YOU undersupplied on some, and oversupplied on others...with the resulting heavy inventory? Sales low? Unit cost rising? Worker efficiency low because of lack of parts to assemble your product?

ARE YOUR parts suppliers unable or unwilling to make short runs of a few hundred or a few thousand pieces?

YOU DON'T NEED TO BE STYMIED by lack of castings, forgings and particular shapes and materials. Why not try a new proven source?

MASTERS' engineers, methods, machines and men are versatile to the Nth degree. Thousands of top quality items have been produced by us for hundreds of leading manufacturers.

Fluid conductor fittings catalog sent on request.

IRVIN W. MASTERS, Inc. 3009 ANDRITA ST., LOS ANGELES AT, CALIF. ET US FIGURE ON YOUR REQUIREMENTS FOR **DURAL, BRASS, STEEL OR STAINLESS STEEL PARTS** 

# CARBIDE KNIFE-SHARPENER



PRECISION knife-sharpener employing tungsten carbide, is announced by the New England Carbide Tool Co., 60 Brookline St., Cambridge, Mass. One or two light passes of the knife through the sharpener restores original keen edge of hollow ground or regularly ground knives. Sharpener is set in plastic body. Ideal for institutions, hotels, etc.

# PIPE-LEAK CLAMP

ALL stainless steel pipe-leak clamp, tested without leaking at pressures said to exceed 240 psi, is announced by Marman Products Co. Inc., 940 West Redondo Inglewood, Blvd., Inglewood, Calif. Clamp con-



sists of Hycar pad which is resistant to deterioration by water, gas, oil, gasoline, etc., covered by annealed backing plate, which can be hand formed to desired pipe contour. Clamps are of stainless steel. Six sizes of pipe-leak clamps for all pipe diameters from 1/2" to 12". Sizes over 12" also available. Printed matter available.

# BRONZE GATE VALVES



LINE of Union Bonnet bronze gate valves rated for 200 lbs. steam pressure, is being introduced by The Fairbanks Co., 393 Lafayette St., New York, N.Y. Of the rising and non-rising stem types, the valves are available with integral seats for regular service or nickel-alloy seats for severe operating conditions. All valves are fitted with nickel-alloy wedges. Heavy octagonal union bonnet nut holds radial body-bonnet joint in pressure-tight alignment.

(Please turn to page 168)



# HEAVY-DUTY DRILLS

THOR HEAVY DUTY 1/2" ELECTRIC DRILL—the original, close-coupled, smaller, lighter half-inch electric drill. No other electric drill of similar size offers such compact power and light weight convenience and high efficiency for continuous service on hard production and maintenance jobs. There's a full range of Thor sizes—a tool for every need—all compactly designed, well-balanced and ruggedly built. For full information ask your nearby Thor Distributor or write for catalog.

# INDEPENDENT PNEUMATIC TOOL COMPANY

Birmingham Boston Buffalo Cincinnati Cleveland Denver Detroit Houston Los Angeles Milwaukee New York
Philadelphia Pittsburgh St. Louis St. Paul Solt Lake City San Francisco Toronto, Canada London, England



# The HAllyouve



AVAILABLE IN FOUR RICH UPHOLSTERY COLORS: RED, GREEN, BLUE, IVORY.



Here's a chair so good looking you'll be proud of it. It harmonizes perfectly with any setting. Yet it's made to stand up under punishing daily use. Consider its many features. Then have your local supply house show you this chair, or mail the coupon at the right.

# Been Looking for...

This new Wear-Ever Aluminum Chair combines beauty and seating comfort with strength and lasting economy. You can use it anywhere.

strong—A 200 lb. load was put on this chair, which was then rocked mechanically, with a 4½" drop on each "rock." After 100,000 "rocks" the chair was still tight and unchanged in its dimensions. It's a self-leveling chair made

of high yield strength, extruded aluminum alloy.

LONG WEARING—The rich, lustrous, sil-

very Alumilite finish is integral with the metal,

can't peel, crack or chip. Won't even show finger marks. Chair is unaffected by heat, cold, dryness or dampness. Upholstery is a heavy, washable fabric that wears like iron, is easy to keep clean.

BEAUTIFUL—Graceful, smart-looking, harmonizes with any surroundings. Finished with black plastic finials and non-marring leg glides. Available in a choice of rich upholstery colors: Red, Green, Blue, Ivory.

COMFORTABLE—Shaped seat and posture design makes these chairs comfortable even after hours of sitting. Just try them yourself.



# ADAPTABLE

Here are some of the places this new chair can be used...

Offices

Lobbies

Reception Rooms

Dining Rooms

Cafeterias

Rest Rooms

Display Rouns

**Auditoriums** 

Conference Rooms

# WEAR-EVEAluminum Chairs-

# Mail This Coupon Today

Fill out and send to your supply house, or to The Aluminum Cooking Utensil Co., 4101 Wear-Ever Bldg., New Kensington, Pa.

# Gentlemen:

Name......Title.....

FIRM

Anness

CITY......STATE.....



MEANS THE SAME QUALITY AND DEPENDABILITY ON

# HACKSAWS AND BAND SAWS





# TO GET THE MOST OUT OF METAL CUTTING

Starrett Hacksaw Booklet "P" describes the complete line of Starrett Hacksaw Blades for hand frame and hacksaw machine and Starrett Band Saws for cutting metal, wood and other materials. Starrett Cutting Chart instantly gives complete information for cutting any material by hacksaw or band saw. Write for copies.



Buy Through Your Distributor
THE L. S. STARRETT CO. • ATHOL • MASSACHUSETTS • U. S. A.

World's Greatest Toolmakers

# STARRETT

PRECISION TOOLS . DIAL INDICATORS . STEEL TAPES . GROUND PLAT STOCK
HACKSAWS . BAND SAWS FOR CUTTING METAL, WOOD, PLASTICS

# PRECISION VISE



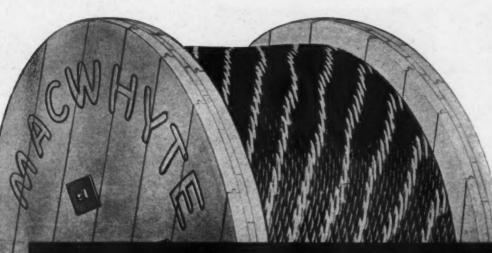
PRECISION vise for die, gage and fixture drilling and grinding is announced by Machinists Tool Company, 2830-2836 West Lake St., Chicago, 12, Ill. Called the Matco All-Angle Vise it holds work at practically any required angle, and is adaptable for use on grinders, drill presses and other machine tools and bench applications The illustrated is available with  $3\frac{1}{2}$ " or  $4\frac{1}{2}$ " jaw saws. Vise swivels 360 degrees on base, has 90-degree vertical angle adujstment and has floating jaw for instant, gripping.

# EXPENDABLE CARTRIDGE FILTERS OILS, ALCOHOLS, BEVERAGES



EXPENDABLE cartridge filters in ten sizes and three new models are announced by Bowser, Inc., Fort Wayne, Indiana. The new type filter contains new, replaceable, resin impregnated, cellulose elements which remove particles as small as 1 micron (.000039 inch) from liquids with viscosities up to 600 S.S.U. and temperatures as high as 350°F. Cellulose cartridges are completely neutral, Based on a viscosity of 50-60 S. S. U. oil, the capacities range from 2/5 gallon to 300 gph with filtering areas from .2 sq. ft. to 100 sq. ft. Larger models come in four sizes; 8, 25, 50 and 100 sq. ft. filtering areas. They have proved effective for Diesel fuel, lube oil, gasoline and other petroleum products. The smallest model is available in six sizes; 1, 1.5, 2, 3, 5, and 10 sq. ft. filtering areas, and is recommended for fuel filtration in stationary engines and wherever petroleum products are filtered intermitently or continuously in moderate quantities.

(Please turn to page 170)



Macwhyte Wire Ropes include:
MACWHYTE PREformed and
Non-PREformed Internally
Lubricated Wire Ropes...

MONARCH WHYTE STRAND
Wire Rope... Special Traction
Elevator Rope... Stainless Steel
Wire Rope... Monel Metal
Wire Rope... Galvanized Wire
Rope. Macwhyte also makes
Atlas Braided Wire Rope
Slings, Hi-Fatigue Aircraft
Cables, Assemblies, Tie-Rods.
Catalogs on request.

a thousand and one...

MACWHYTE WIRE ROPES...

all job-proved ... assure you the correct rope for your equipment

When you use the correct wire rope, both the rope and your equipment last longer, cost less to operate. Macwhyte consulting engineers will check your equipment and recommend the wire rope specifically engineered for your job. Ask your Macwhyte distributor, or write Macwhyte Company.

# MACWHYTE WIRE ROPE

Manufactured by Macwhyte Company
2918 Fourteenth Avenue, Kenosha, Wisconsin

Mill Depots: New York • Pittsburgh • Chicago • Minneapolis Fort Worth • Portland • Seattle • San Francisco • Los Angeles Distributors throughout the U.S. A. and other countries.

Se8 .OH

Make MACWHYTE your headquarters for WIRE ROPES

# WASHERS

STANDARD AND SPECIAL

Every Type
Every Material
Every Purpose
Every Finish

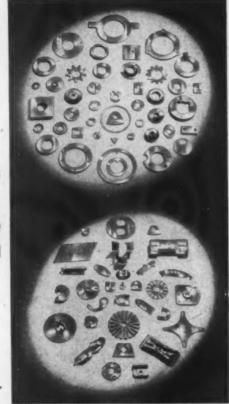
Over 22,000 Sets of Dies

# STAMPINGS

OF EVERY DESCRIPTION

Blanking
Forming
Drawing
Extruding

Let us quote on your requirements.



WROUGHT WASHER MFG. CO.

2113 SOUTH BAY STREET . MILWAUKEE 7, WISCONSIN

Quality you can depend on

# SIMONDS GEARS

Any material—heavy types!
Spur · Bevel · Mitre · Hellical · Worm · Worm Gears ·
Racks—in cast or forged
steel, gray iron, bronze,
silent steel, rawhide or
bakelite. Over 50 years'
experience!

Also distributer for RAMSEY Silent Chain Drives and Couplings. Send us your inquiry today!

THE SIMONDS GEAR & MFG. CO.

LIBERTY at 25TH

PITTSBURGH 22, PA.



# KENNAMETAL CEMENTED CARBIDE

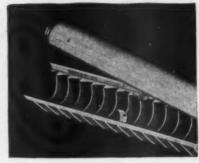
TOOLS, BLANKS, and SPECIALTIES

- FOR FAST, ACCURATE METAL-CUTTING . . . complete selection of single-point tools and milling cutters.
- RESIDENT TOOL ENGINEERS in 24 cities available for expert help in proper selection and correct use.
- WAREHOUSES in Chicago, Cincinnati, Los Angeles, New York, and San Francisco to expedite delivery.



KENNAMETAL Suc., LATROBE, PA.

FLUORESCENT LAMP SHIELD



FLUOR-O-Shield is name of fluorescent lamp shield announced by the Camfield Manufacturing Co., Grand Haven, Mich., for eliminating glare from exposed lamps. They are said to provide light virtually without glare. There is no horizontal surface to collect dust. They are made of aluminum, are light in weight, and easy to install — snaps on lamp tube.

THERMOMETER SHOWS MINIMUM, MAXIMUM TEMPERATURES



AN all-metal thermometer, the Max-Min, which indicates the maximum or minimum temperatures reached, is announced by Weston Electrical Instrument Corp., Newark, N. J. It has auxiliary red index which is manually set to low or high side of temperature pointer. Pointer moves index to lowest or highest temperature reached during operating period. Available with scale diameters of 3" and 5" as well as usual Weston ranges, and in stem length 2½"-48".

ELECTROPLATING CONTROL TABLE



THE Diggin Electroplating Control Table, a complete miniature plating laboratory designed for either routine control of plating solutions or research work, is announced by The Hanson-Van Winkle Munning Co., Matawan, N.J. With this scientific control instrument, test panels can be plated under closely controlled conditions so that the results of additions, impurity removal treatments and variations in operating conditions can be observed.

(Please turn to page 172)

# Is Activated Carbon the answer to your Adsorbent Problems?

the most versatile adsorbent for solving problems of

Air Conditioning
Solvent Recovery
Gas Purification
Deodorization
Decolorization
Fractionation
Isolation of Organic
Chemicals or Drugs
Catalysis or

Catalyst Carriers

The technology of modern manufacturing embraces, in ever increasing degree, application of the science of chemistry as well as the mechanical forces of physics. Likewise the accomplishment of a physical act through a chemical medium becomes more and more common practice. Solving problems of adsorption is a typical sample of this method.

Of the various adsorptive materials, Activated Carbon has proved to be exceptionally adaptable and versatile. It has high adsorptive capacity, is chemically stable, readily regenerated and can be made in a variety of forms and sizes to meet specific needs. Moreover it can be produced relatively economically on a tonnage basis for large scale applications.

If your manufacturing process requires the use of an adsorbent you should investigate the merits of Activated Carbon. Pittsburgh Coke & Chemical Company has the technical "know-how" and the production facilities to help you. Ask us to!





Pittsburgh Coke & Chemical Company

**Grant Building** 

Pittsburgh, Pennsylvania



# Generalift PALLETS

One workman and fork lift truck do the work of many. Instead of picking it up and laying it down, moving it piece by piece—many items can be consolidated into single loads, palletized, moved as one.



ENGINEERED SHIPPING CONTAINERS

# General BOX COMPANY

GENERAL OFFICES: 48 West Illinois St., Chicago 10, Ill.

DISTRICT OFFICES AND PLANTS: Brooklyn, Cincinnoli, Datroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orloans, Sheboygan, Winchendon.

Continental Box Company, Inc.: Houston, Dallaz.



That's why so many thousands interested in the speedier and more efficient handling of materials, components, and finished products are turning to pallets. That's why you, too, should check on this important subject today.

Generalift Pallets, Skids, and Lift Boxes are made of sturdy hardwood construction. Designed for long life, rough handling, extra heavy loads—made to your specific requirements. For complete information, write for free Pallet Booklet.



General Wirebound Crate



General Cleated Corrugated Container

ECONOMIZE . . . PALLETIZE . . . GENERALIZEI

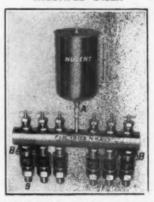
# ENDOTHERMIC ATMOSPHERE GENERATOR

FULLY automatic central station endothermic atmosphere generator, said to produce a clean, dry gas for hardening, brazing, and sintering all medium and high carbon steels without decarburization



or carburization, is announced by Lindberg Engineering Co., 2444 W. Hubbard St., Chicago 12. Available in 4 standard sizes, 500, 750, 1500 and 2500 cfh, the Hyen Hydryzing generator operates by eity gas, natural, propane or butane for both heating and atmosphere. Bulletin 190 available.

# MULTIPLE OILER



HEAVY-duty multiple oiler is announced by Wm. W. Nugent, Inc., Chicago. Unit has reservoir tank capacity of three pints, and is available with a string of sight feed valves in multiples of from 2 to 23 feeds. It is designed to be used on any machine that requires drop feed or small stream. Union outlets on each feed are available in sizes from 1/8" to 3/6" ips female.

# PORTABLE TACHOMETER



NEW lightweight inkless tachometer recorder to provide a record of rotating speed is announced by the Meter & Instrument Divn. of General Electric Co., Schenectady, N. Y. Known as the

Type CF-3 it is designed to operate with an aircraft-type a-c tachometer generator, although any a-c generator with suitable characteristics can be used. Scale range is 0 to 3000 rpm. Readings are accurate to within 1.5 percent of full scale with full-scale deflection obtained in two seconds. Though furnished in portable form it can be mounted on wall or panel. Bulletin GEA 4703 describes the unit.

d d

terle



The Alcoa Service Engineer can make suggestions and recommendations that will help you cut down rejects, and get more ready-to-ship castings out of your aluminum ingot inventory.

He may suggest minor pattern changes or a different Alcoa Casting Alloy. Or a change in the spotting of gates and risers. Perhaps your melting procedure or foundry techniques can be improved. Aluminum foundry procedure is his business; his advice can help you make your Alcoa Pig and Ingot go further, with fewer rejects and casting repairs.

If you need information or technical help on aluminum casting practices, write to Aluminum Company of America, 1931 Gulf Bldg., Pittsburgh 19, Penna. Or call the Alcoa sales office nearest you.

MORE people want MORE aluminum for MORE uses than ever

ALCOA ALUMINUM



IN EVERY COMMERCIAL FORM

# New Laminate Suggested for Automobile Fenders, Trunk Lids, Boats

Plastic automobiles and boats are two of the future possibilities seen in a new low-pressure molding resin developed by chemists of the Goodyear Research Laboratory, maintained in Akron, Ohio, by the Goodyear Tire & Rubber Company.

The new resin makes possible the production of laminated plastics which are lighter than aluminum sheet but possess greater tensile strength, according to Dr. L. B. Sebrell, director of the laboratory.

Known as GRM-2, the new resin is a derivative of a complex organic glycol.

"At the moment the new resin lends itself to the manufacture of all sorts of complex industrial shapes including automobile fenders and the inside linings of automobile bodies," Dr. Sebrell said. "Plastics made from it compare very



Plastic trunk lid weighs 11 pounds less than similar cover made of metal and is said to be equally as strong.

favorably with aluminum sheet and not too unfavorably with steel itself. In fact, it is entirely possible that future developments may enable these plastics to equal steel on a unit weight basis."

As is well known, laminated plastics are built up of sheets of paper or fabric impregnated with resin. Usually, how-ever, a high pressure of 100 pounds or more per square inch is needed to con-

solidated the plastic. One of the chief advantages of the new GRM-2 resin is that it can be molded at low pressures ranging from 15 to 40 pounds per square inch, Dr. Sebrell said.

GRM-2 can be laminated with a considerable variety of materials including paper and various fabrics such as canvas and fiberglass. The strongest plastics have been obtained so far with the use of glass fabrics.

A laminated plastic of fiberglass and GRM-2 showed a tensile strength of 38,000 pounds per square inch as compared to a tensile strength of 21,000 pounds per square inch for aluminum, Dr. Sebrell said.

Because the new resin can be molded at low pressure, it is possible to carry on the operation with the aid of inex-pensive wooden molds. The usual process is to build up layers of fabric saturated with the resin over a form. The completed fabrication is then transferred to the mold where pressure is applied with the aid of an inflatable rubber bag.

To date, two difficulties in manufacture have delayed the commercial untilization of the new resin. One is a tendency of the plastic to stick to the rubber bag. The other is that fumes created in the curing process, from the resin, cause deterioration of the rubber bags. As a result these difficulties have kept manufacturing costs too high. However, it is expected that both difficulties will be overcome in the near future.

Dr. Sebrell points out that articles made of the new laminated plastic, such as automobile fenders, for example, have many advantages over metal. There is no danger of rusting or corrosion and in addition the plastic can stand more shock than metal.

RENEWABLE HAMMER HEADS

U. S. Patent 2,397,776, covering the Amsco-Clark Pulverizer Hammer, used in stone quarries, cement mills, etc., has been issued to J. O'Fallon Clark, American Manganese Steel .Co. engineer, and assigned to the American Brake Shoe Co., Chicago Heights, Ill. This renewable and reversible hammer consists of an austentitic manganese steel weighted head connected to a rotor by a shank consisting of two matched bars bolted together under the eye, operating as a one-piece shank which is easily disengaged from a worn head. "Windows" or holes in the tip sides show operator the limit of tip wear, eliminating guessing as to when to change There is no operating stress on the



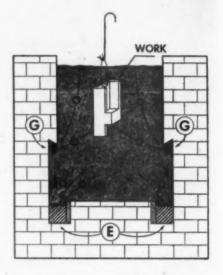
Worn tips at right demonstrate amount of wear tips can take before replacement is necessary.

shank bolt used to hold assembly together, and the tip cannot work or wear loose.

Illustration shows a new Amsco-Clark hammer and three worn tips, demonstrating amount of wear a tip can take before being replaced. Actual weights of items shown are: New hammer 491/2 lbs.; new tip 21½ lbs.; worn tip 7 lbs., — two thirds of tip being worn away before replacement. The terrific impact shocks have the effect of work-hardening the manganese steel hammers.

# OXIDES RENEW SALT BATH **FURNACE ELECTRODES**

What is said to be one of the most revolutionary advances in the design and construction of internally heated salt bath furnaces, is new process developed by the Upton Electric Furnace Div., 7450 Melville at Green, Detroit, Mich., for automatically renewing electrodes which have been permanently sealed in among the refractory matter at the bottom of an electric salt bath furnace. Source of the renewing agent, according to the company, is the presence of oxides which are normal to any high temperature salt bath. These oxides are automatically generated from three sources: contact of the molten salt with oxygen of the atmosphere, the



O OXIDE E ELECTRODE C CARBON G GRAPHITE ROD

absorption of oxygen from the surface of the work, and finally the absorption of oxygen from the surface of the electrodes. The electrodes are located in slot or pocket in the bottom of the furnace. On each side of the pot above each electrode there is an overhang of refractory material which holds a graphite rod. As the oxides contact the graphite rod they are reduced to a metallic state forming a metallic scale on the graphite rod, which melts and falls on the electrode, becoming a part of the electrode. Where renewal may not be fast enough, cast iron may be dropped into the bath, and by the same chemical reaction become an integral part of the electrode. By either means, the electrodes never need changing, and, according to the Upton Electric Furnace Division, will outlast the furnace itself.

> NEW COLD RUN RESIN GLUE WORKABLE IN 20 MINUTES

A new cold-run, fast-setting resin wood glue, "Wood-Lok," has been developed for joint assembly operations by National Adhesives, of 270 Madison Avenue, New York City 16.

Maker states it is the only type of resin glue that can be handled and machined (Please turn to page 176)



# with Republic / ELECTRUNITE Tubing

It's the upset OD flange on this pneumatic wheel hub which made production operations costly before ELECTRUNITE Tubing/was adopted for this close-tolerance application./

To avoid damaging strain on costly dies and press in upsetting, tubing OD and ID tolerance requirements are extremely close plus .005", minus .000". With tubing previously used, variations, in wall thickness and concentricity necessitated rigid inspection before fabrication . . . 90% of the tubing was rejected . . . scrap rate among finished hubs ran approximately 10%.

Now, ELECTRUNITE Tubing has changed the picture entirely. Because of its *consistent* uniformity of wall thickness and concentricity, pre-fabrication inspection routine has been eliminated . . . every length of tubing meets upsetting requirements . . . scrap rate among finished hubs has dropped to zero.

Yes, uniformity is a plus value of ELECTRUNITE Tubing . . . a plus value which pays profit dividends in every application. For complete information, including list of sizes in both carbon and stainless steel analyses, write to:

REPUBLIC STEEL CORPORATION
STEEL AND TUBES DIVISION • CLEVELAND 8, OHIO
Export Department: Chrysler Building, New York 17, New York



Mechanical, Aircraft, Stainless Steel and Rall Steel Tubin

ELECTRUNITE TUBING ROPER

O Four-port design offering eight optional piping connections cuts installation time and cost. Four

Four-port design offering eight optional piping connections cuts installation time and cost. Four piping arrangements are possible with pump operating clockwise... 4 other arrangements with pump operating counter clockwise.

- Hydraulic self-lubricating principle prolongs pump life with less service attention. There is positive continuous bearing lubrication. Liquid pumped enters grooved bearings from pressure side, is drawn to suction side through grooves in opposite bearings.
- Easy accessibility to working parts cuts down "outof-service" time. It is not necessary to disturb piping, power unit, or pump mounting to inspect or replace gears, case, bearings or packing.

Send for Bulletin of Pumping Facts.

GEO. D. ROPER CORP., 391 BLACKHAWK PARK AVE., ROCKFORD, ILL.

Builders of Pumps for Manufacturing, Marine, Petroleum and Process Industries.

Capacities 34 to 300 G.P.M.; pressures up to 1000 P.S.L.; speeds up to 1800 R.P.M.



(Continued from page 174)

after 20 to 30 minutes' clamping time. Exhaustive tests in National's laboratories and two years' use and study in a wide variety of woodworking applications in the field, show it produces a strong, resilient bond unaffected by humidity changes. It provides a durable bond with any type of wood, according to the announcement.

# "FLAMELESS" FLAME FUEL NOW BEING PRODUCED

A form of formaldehyde called trioxane that can burn with an extremely hot, "invisible" flame as a tablet fuel for important industrial uses is now for the first time being produced on a commercial scale, it was announced recently by E. I. du Pont de Nemours and Company, Wilmington, Del.

Trioxane was utilized during the war in experiments conducted by Du Pont in search of a fuel that would heat military field rations with a non-luminous flame and thus safeguard positions of front line troops against discovery. The tablets ignite instantly, producing a clean flame not easily blown out by the wind.

For industry, trioxane provides a source of formaldehyde for reaction with various other materials that, in many cases, gives more positive control of operations, improved quality and uniformity of the end product, better yields, shorter reaction time, and a generally smoother overall reaction than can be obtained by the use of other forms of formaldehyde.

Industrial users of formaldehyde include manufacturers of plastics and resins; dyes; chemicals for textile treatment, embalming fluid, paper, leather and cork products; disinfectants, deodorants, preservatives, and seed and soil treating compounds.

Trioxane was discovered in 1885 by the Italian chemist, Pratesi. Methods for its preparation were devised by later investigators, but yields proved low.

Du Pont chemists developed practical procedures for making trioxane, and facilities for its manufacture on a commercial scale have now been placed in operation at the Perth Amboy, N. J., plant of the Electrochemicals Department.

# AUTOMOTIVE BATTERY CONSERVATION

1 1 1

In speaking on automotive battery conservation, Royce G. Martin, President of the Electric Auto-Lite Co., Toledo, 1, Ohio, States that the efficiency of a fully charged battery is dependent upon the existing temperature in addition to the viscosity of the oil in the crank case. For example the efficiency of a full charged battery at 80° F. is considered to be 100%. The battery's efficiency at the freezing point of water is 65%. Zero temperatures bring the battery's efficiency below half or approximately 40%.

(Please turn to page 178)



# this is



the old way...

When you use SEMS on your assembly line you eliminate the wasteful motions involved in putting the washer on the screw and then carefully positioning the assembled pieces for driving. SEMS bring you both washer and screw preassembled as a single unit . . . ready for one easy motion from pan to driving position. There's no "fumbling" when you do it the SEMS way for the washer can't fall off!

Send for samples today and conduct your own demonstration. See for yourself how SEMS reduce costs by simplifying and speeding production and at the same time provide quality control because the worker can't "forget" the washer.

# this is the SEMS way







SEMS are Pre-Assembled Washer and Screw Units in which the Washer is held on the Screw by the Rolled Thread and is free to rotate.

# SEMS ARE AVAILABLE FROM THE FOLLOWING MANUFACTURERS

Continental Screw Co.
New Bedford, Mass.

Corbin Screw Division
The American Hardware Corp.
New Britain, Conn.

Eaton Manufacturing Co.
Reliance Division
Massillon, Ohio

The Lamson & Sessions Co.

National Lock Co. Rockford, Illinois

The National Screw & Mfg. Co. Cleveland, Ohio

> New England Screw Co. Keene, N. H.

Pheoli Manufacturing Co.
Chicago, Illinois

Russell, Burdsall & Ward
Bolt & Nut Co.
Port Chester, N. Y.

Scovill Manufacturing Co.
Waterville Division
Waterville, Conn.

Shakeproof Inc.
Division of Illinois Tool Works
Chicago, Illinois

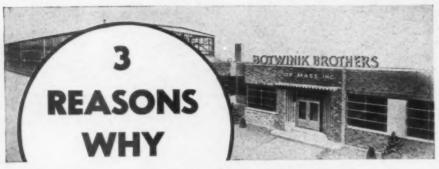
Steel Co. of Canada, Ltd. Hamilton, Ont., Canada

> Stronghold Screw Products Inc. Chicago, III.

American Screw Co. Providence, R. I.

> Central Screw Co. Chicago, III.

Chandler Products Corp Cloveland, Ohio



# You Should Look To Botwinik When Buying New, Used or Rebuilt Machine Tools

Variety

As one of the largest concerns of its kind in the U. S., with complete, modern facilities, Botwinik carries in stock new, used and rebuilt machine tools of every description. There are thousands from which to select.

Economy

Because of the extent of our activities and experience, we are able to answer all machine tool problems expertly to effect a saving in time and money to the customer.

Complete Service Our staff of skilled engineers, who are thoroughly familiar with all machine tool requirements, are always willing to help you attain low cost, efficient production.

# Botwinik Brothers of Mass., Inc.

13 Sherman Street

Worcester (1), Mass.



# PLASTIC-COATED STEEL PIPE RESISTANT TO CORROSION

Development of plastic-coated steel pipe resistant to the corrosive conditions often encountered in oil-well drilling, is announced by the Spang-Chalfant Division of The National Supply Co., Pittsburgh, Pa. Accompanying illustration shows half-sections of 4½" outside-diameter drill pipe; section on left shows the inside surface of the pipe as it comes from the mill while the one on the right is inside-coated with a baked-on plastic. The plastic coating, said to be one of the most important developments in oil well drilling in recent years, protects the pipe against corrosion while drilling wells in highly corrosive oil fields.

Spang-Chalfant, which also manufactures pipe for industrial and home use, is continuing its research to develop the coating process for pipe used in many other industries other than the oil fields.



Pipe on the right is inside-coated with a baked-on plastic.

The coating protects the metal against the formation of corrosion pitting, thereby preventing the development of corrosion fatigue cracking. Only the inside of the pipe is coated for oil-well drilling because it has been found that almost all corrosion fatigue failures develop only from the inside. For other application it is felt that the pipe probably would need to be coated on both the inside and outside surfaces.

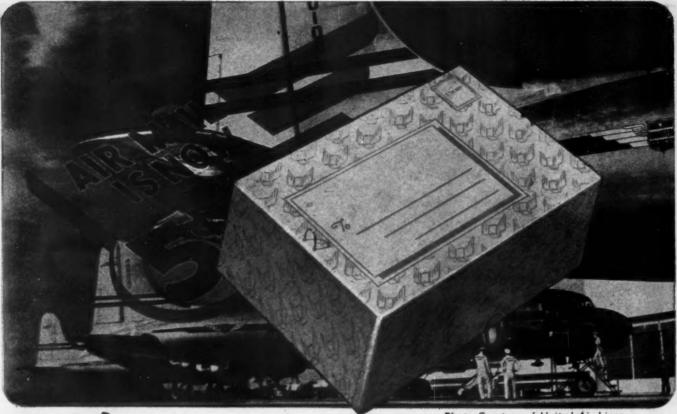
# SYNTHETIC BONDING MATERIALS PROVE SUPERIOR

The accompanying illustration depicts results of accelerated water resistance tests of laminated tennis racquets bonded with animal glues and with synthetic resin adhesive known as Urac 185, product of the American Cyanamid Company, 30 Rockefeller Plaza, New York. According to the company, the animal glues failed while the synthetic adhesive provided a perfectly satisfactory bond when subjected to the accelerated water resistance tests.

Although tennis racquets were formerly made from solid wood, the modern technique is to laminate them from thin strips of veneer in order to obtain greater

(Continued on page 182)

e dicional id



# Photo Courtesy of United Air Lines

Postal receipts in the first few months of the new air mail rate show vastly increased use. People today are definitely air mail conscious. Why not speed up your shipment use air mail and Mason MailMasters. with air mail-in a Mason MailMaster, the accepted leader in air mail pack-

aging. Its added strength, safety and convenience will appeal to your shipping department and your customer. For speed and safety -



NUFACTURERS OF AMERICA'S NUMBER ONE BOX . . . THE MASON MAILMASTER

\*

# Are You Missing a Bet?

# Here's what 32 ALUNDUM

"50% faster cutting, 100% longer wheel life" — Surfacing broaches

"Ground 3600 pieces per wheel compared with 1200 to 1500 previously"

— Surfacing cast iron with segments

"Gave over 40 holes per wheel compared to 10 for best previous wheel" — Internal grinding of pump part

"Ground 30 high speed steel crank lathe tools compared to 23 tools for competitive wheel" — Sharpening tools

"Gave over 1000 pieces per dressing compared to 300 previously" — Surfacing razor parts

"Wheel life of five weeks as compared with four weeks previously; 50 pieces per dressing compared with 20" — Cylindrical grinding of shafts

"Required 1/3 less dressing.
Lasted 1/3 longer. Better
finish, cooler cutting"
— Surfacing chrome steel



# is doing....

"Removes .002 - .003" per pass on large Hi-carbon and Hi-chrome dies as compared to .0005" with previous wheel" — Surfacing dies

"75% increase in life. Required no dressing" — Sharpening file chisels

"Wheel life 15% longer than competitive wheel. Required dressing only once every two days, no loading "
— Snagging forgings

"Lasted 16 days against three days for competitive wheels and cut bet-ter" — Surfacing dies with segments



When ordinary abrasives are crushed to size it results in many grains with flat sides. When such grains are bonded into a wheel it is often a flat side that is exposed in the surface instead of a useful cutting point.

No crushing to size is necessary with 32 ALUNDUM abrasive. The grains form as individual crystals — pointed on all sides. No matter how they are bonded into a wheel one or more cutting points are exposed.

### and

### HERE'S WHY!

The crushing process used to reduce ordinary abrasives to commercial sizes produces many grains with flat surfaces and long edges. When these grains are bonded in a wheel they often locate with a flat area exposed in the surface instead of a useful cutting point.

Because the grains of 32 ALUNDUM abrasive form in the electric furnace as complete crystals each one has sharp points on all sides. No matter how these uncrushed grains are bonded into a wheel one or more cutting points will be exposed.

This means that in a wheel of 32 ALUNDUM abrasive there are many more cutting points doing the work. And these cutting points are extremely resistant to dulling because "32" is over 99% pure fused alumina.

The greater number of longer-lasting cutting points doing the work means that a 32 ALUNDUM grinding wheel removes stock more rapidly. Because grinding heat is spread over more points, and points that stay sharp longer, "32" wheels cut cooler. Because there are more points doing the work and points that don't dull quickly, 32 ALUNDUM wheels require fewer dressings and last longer.

NORTON COMPANY, WORCESTER 6, MASS.

Distributors in All Principal Cities

NORTON ABRASIVES



Continuous Fibres running from end to end — uninterrupted, unbroken and unsevered! Accomplished exclusively by the Holo-Krome patented method of Completely Cold Forging and sold thru Holo-Krome Industrial Supply Distributors under the registered trade mark name "FIBRO FORGED" Socket Screws . . . Specify "Holo-Krome" and get these guaranteed unfailing performance Socket Screws.



INTERNAL WRENCHING

. . . THE BETTER
FASTENING METHOD

# HOLO-KROME

fibro forged





THE HOLO-KROME SCREW CORP. • HARTFORD 10, CONN.











(Continued from page 178)

strength and to prevent warping.

Either animal glue or NRAC 185 can be used for the laminating operation inasmuch as both require little pressure and have "gap filling" characteristics, making possible the joining of parts where perfect fitting is not always feasible.

Test conditions were as follows: Synthetic resin bonded racquet (left) was soaked for 105 min. in water at 160° F. There was no delamination and no discernible deterioration of the bond.

Animal glued racquet (second from right) after soaking for 105 min. in water at 160° F showed complete delamination and had to be held together with tape.



The two racquets at the left are bonded with synthetic Urac 185

The other two racquets in the picture were soaked for 24 hrs. in water at room temperature with the results shown.

For such applications as the assembly of station wagon bodies, boats, sporting goods, prefabricated houses and other uses where water resistance and permanence of bond are required, URAC resin adhesive 185 has proved to be a worthwhile addition to the tools of the woodworkers craft.

#### GE ANNOUNCES REDESIGN OF RESISTANCE WELDING CONTROLS

Redesign of its complete line of synchronous precision controls for resistance welding machines has been announced by the Control Division of the General Electric Company. All components in the new line, plus the control station, are compactly housed in one cabinet, making the control easy to install, service, and operate. It is designed for spot and projection welding on air, fluid-, motor-, and foot-operated resistance welding machines. Although arranged for mounting on the right-hand side of the welding machine, it may be placed on the floor, or on a nearby wall or balcony if floor space is at a premium.

Components of the control system, all meeting the new NEMA standards, include ignition contactors, a weld timer, electronic heat control, and, as optional equipment, sequence controls and tempering control. The single enclosure is designed so that the control station always faces the operator. All the components

(Continued on page 184)

# An Instrument of Tomorrow

BETTER INSIDE ... BETTER OUTSIDE ... BETTER ON THE FACE OF IT



.... Here Today



UNITED STATES
GAUGE

THE NEW USG SUPERGAUGE—is one of the most accurate yet rugged pressure instruments ever built. The new sturdy design gives Supergauge "test gauge accuracy" even in applications where excessive vibration and pulsation are present. Engineered for years of extra heavy-duty service, it is a safe, economical check on process control. Supergauge's smart, modern case encloses a broad-faced dial with clear legible figures for easy reading. Reasonably priced, Supergauge is your best buy in precision instruments. See it today!

DIVISION OF AMERICAN MACHINE AND METALS, INC. SELLERSVILLE, PA. Manufacturers of Pressure, Temperature, Flow and Electrical Measuring Instruments







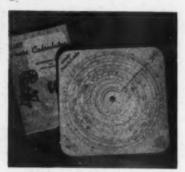
(Continued from page 182)

with the exception of the ignitron contactors are mounted on hinged panels which can be swung out without interrupting service.

#### CRARY PRESS CALCULATOR

"Crary Press Calculator", designed to provide a simplified method of selecting presses for blanking and drawing operations is announced by The Calculator Co., P.O. Box 65, Teaneck, New Jersey. It is stated that within one-half hour the average person, with or without technical training, can learn to figure ordinary jobs quickly.

For blanking operations the calculator selects size press, by giving crankshaft diameter and tonnage at bottom of stroke required to do the job for presses up to 1000 ton capacity. For drawing operations it selects the correct press size by giving crankshaft diameter and tonnage away from bottom of stroke, and gives maximum press speed for any particular metal being drawn.



Simplifies selection of presses for various operations

A 70-page booklet, written in non-technical language, accompanies the calculator. In addition to explaining use of the chart, text deals with Blanking Operations, Drawing Operations, and related subject matter, and various technical tables. The calculator, which measures 9½" x 9½", is made of heavy non-warping Vinylite plastic with protective clear sheet of Vinylite over printed surfaces.

## BRASS AUTO PLATES COVERED WITH SCOTCHLIGHT

Automobile license plates issued by the state of Connecticut will henceforth be made of brass covered with Scotchlight, a transparent material which, applied to wood or metal, reflects light. It is felt that the addition of Scotchlight will constitute an important safety factor.

### G-E SILICONE OIL USED AS MOTOR LUBRICANT

Improved performance of timing motors when operating under an extremely wide range of temperatures with the use of G-E silicone oil as a lubricant has been reported by the Haydon Manufacturing Co., Forestville, Conn.

(Continued on page 186)



#### **Fasteners That Defy The Elements!**

Fasteners, wire and cable connectors, nuts, bolts, screws, nails and many other products made from Bridgeport's Duronze alloys not only give extremely long service, but also reduce the frequency and cost of maintenance. Duronze engineering alloys do not rust and can readily withstand constant exposure to the weather, smoke and other corrosive elements. They possess remarkably high strength too . . . ranging from 80,000 to 100,000 psi depending upon requirements. They are also exceptionally dependable since they resist stress-corrosion cracking.

Designers and engineers rely on

Duronze for consistent performance of pole-line hardware for power and communication lines; railway electrification apparatus; waterworks and sewage equipment; underground construction installations and other units where weather and temperature extremes take their toll of ordinary materials. Bridgeport does not make these fastenings but supplies wire and rod to manufacturers.

Bridgeport's Technical Service Department will be glad to help you select the right alloy to meet your requirements.

"Bridgeport" BRIDGEPORT BRASS COMPANY
BRIDGEPORT 2, CONN. Established 1865

\*Reg. U. S. Pat. Off.



Wire-Lock Clamp, Courtesy Bridesburg Foundry Company, Fullerton, Pennsylvania.

BRASS • COPPER BRONZE • DURONZE CUPRO NICKEL NICKEL SILVER

> Rod • Strip Wire • Tubing

Duronge Alloys-PRODUCTS OF BRIDGEPORT BRASS



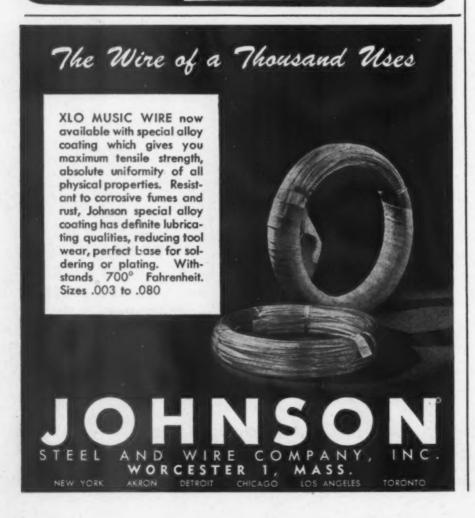
#### WHERE SPEED AND PRECISION GO HAND IN HAND!

These six intricate drill jigs for horizontal Natco set-ups-complete with patterns, equipment and castings-were produced by MERZ in just 10 weeks! More important still, they had to be-and sion standards for drilling, reaming and counter-boring vital

engine parts! This is a typical example of what is done daily at MERZ-where speed and precision go hand in hand. MERZ designs and produces standard A.G.D. and special gages, tools, dies and were-built to the highest preci- experimental machines. Write for complete information on MERZ precision products and services.

WATCH FOR SPECIAL ANNOUNCEMENT SOON ON NEW MERZ AIR GAGEST

MERZ Engineering Company



#### NEW PLASTICS BOTTLE CAPS AND SEALS ANNOUNCED BY GE

Plastics bottle caps and seals that afford a new protection to chemicals and pharmaceuticals during shipment and storage have just been announced by the General Electric plastics divisions, Pittsfield, Mass.

Made of a tough, durable material that is highly resistant to the acids and alkalies as well as moisture, the new caps are made to shrink to a tight fit on the bottle and completely seal the contents from air and moisture. By placing them over corks or glass stoppers, they provide a perfect lock which is especially valuable during shipment.

They are easily applied and removed; also they remain tough rather than become brittle after aging. Tests have shown that the caps have less than 1%



The caps are tough, and air and moisture-proof

of the water vapor permeability shown by the cellulose type now so widely used.

The caps and seals may be applied to practically any type of bottle used for chemicals or pharmaceuticals. They may be applied to serve as the complete cap, as a cap placed over corks or glass stoppers or as a sleeve to seal any conventional bottle top.

Previous to use, the caps and sleeves are soaked in a G-E dilater solution which expands them to half again their normal size. They are then placed in position while dilated and allowed to dry. When thoroughly dry, they shrink to smaller then their original size to form a tight fit.

Produced in a variety of colors, the caps and sleeves are made in varying diameters and thicknesses to provide the desired protection. They can be crimped any length with a trademark added if desirable.

#### AUTOMOBILE WASHER WASHES, POLISHES AND DRYS A CAR A MINUTE

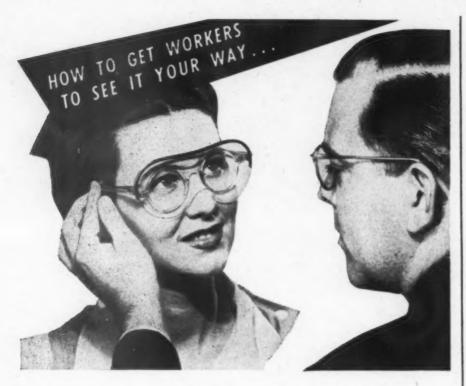
New machine, known as the Minit-Man Automatic Car Washer made by the Minit-Man Car Washer Div., 7450 Melville, Detroit, Mich., is claimed to wash, polish and dry a car a minute. It can also be used for panel delivery trucks and similar vehicles. The machine consists of two units-a washer and drier. The washer employs a series of brushes that revolve continuously and are brought to

(Continued on page 188)

Me W



SOCKETS



Strengthen your eye safety program
with WILLSON



Behind FeatherSpecs there's safety from flying sparks and chips in semi-hazardous jobs such as light grinding, wood working, spot welding.



Large wide one-piece plastic lenses provide high frontal impact strength. The success of any safety program depends largely upon worker cooperation. And when employees place comfort on a par with protection you'll find the Willson FeatherSpec fills the bill on both counts.

Here is plastic eye protection, less than an ounce in weight, designed primarily for the many semi-hazardous jobs. Workers wear FeatherSpec all day long and hardly know they have it on. The integral, molded-in nosepiece rests lightly on the bridge of the nose while there's plenty of room for wearing prescription glasses.

FeatherSpec lenses are easily replaceable—but in use, are held secure in a sturdy metal suspension-lock frame. The lenses, either crystal clear or Willson Tru-Hue green are free from distortion.

For help with your eye and respiratory protection problems, consulty our Willson distributor or write to Willson Products, Inc., 221 Washington Street, Reading, Pa.



GOGGLES - RESPIRATORS - GAS MASKS - HELMETS

WILLSON

PRODUCTS INCORPORATED

Established 1870

221 WASHINGTON STREET, READING, PA., U. S. A.

(Continued from page 186)

bear against the front, top, sides and rear of the car, and an endless belt spins the wheels of the car as they are brought into contact with the wheel brushes. Air for the drying cycle is supplied by a motor driven blower, and does not require heating. Amount of labor required depends upon the number of cars washed per day. From 100 to 150 cars per day will require, it is said, three men.

#### 2085 POUND TIRE FOR EARTH-MOVING EQUIPMENT

The accompanying illustration shows bottom half of mold for curing new earthmover tire that will weigh 2,085 pounds, scheduled for production by the Goodyear Tire & Rubber Company, Akron, Ohio. This 30-ply rating tire will stand 95 inches high, and its cross sectional width



Ten hours of vulcaniaztion in the mold is required after tire is built.

will measure more than 33 inches. Chief reasons for the use of large earthmoving machinery are increased tonnage and lower costs. Prime qualifications of earthmover tires are: Ability to carry maximum loads at maximum flotation; to resist snagging, bruising and cutting; to provide strength for carrying heavy loads, and to supply traction for all types of surfaces.

#### HEATING BOILERS PUT ON TOP OF 18-STORY BUILDING

Unique departure from ordinary technique in heating of office buildings is scheduled for installation about January 15, when two large boilers will be installed on top of the Kirby Building, Dallas, Texas. Boilers to be installed are of the 25,000 square feet EDR rating type.

#### ELECTRONIC DEVICE INCREASES ANODYZED RIVET OUTPUT

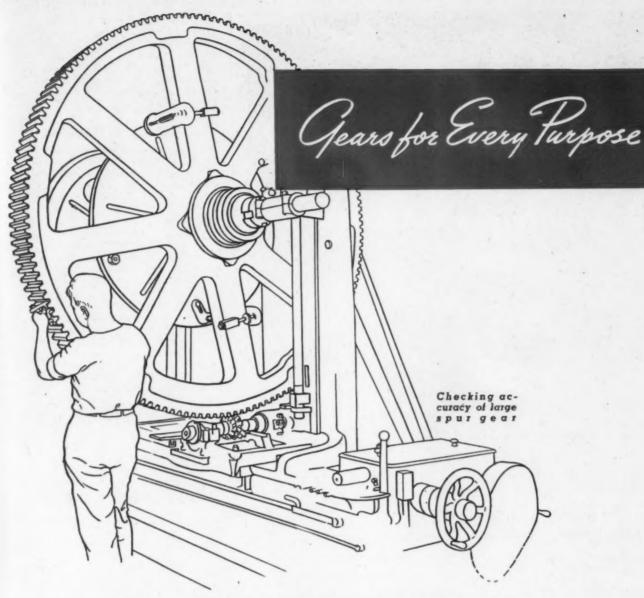
1 1 1

An electronic device has been developed by Walter H. Bankard, of The Glenn L. Martin Company, Baltimore, Maryland. It is attached to a standard rivet sorter and has been the means of improving the methods of anodyzing rivets, so as to increase the output and cut down on man-hours. It is a special device of low voltage, with a magnetically operated lever which is energized by completing an electrical circuit between the plate and the contact point.

(Continued on page 190)



e e, d of g d al i-d e-t.



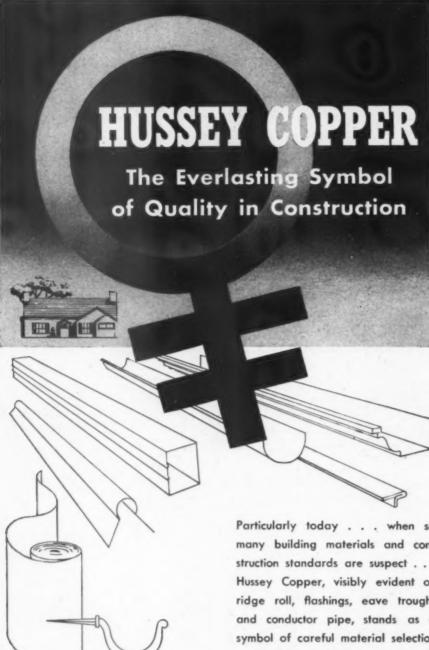
# CRAFTSMANSHIP

Many elements make up the Illinois Gear concept of craftsmanship. Skill developed by experience and never-ending training. An acceptance and mastering of all practical new methods and machines with the realization that the goal of perfection is always just ahead. Above all a dedication to service that is reflected in the quality of the work done.

There is a constant striving for your complete satisfaction, and an interest in producing each job so that the succeeding job will naturally be our reward.

Send for Catalog 39
ILLINOIS GEAR AND MACHINE CO., CHICAGO 35, ILL.

ILLINOIS GEAR & MACHINE COMPANY



#### PRODUCTS FOR THE **BUILDING TRADES**

- Copper Sheet Copper Strip
  - Copper Nails and Rivets
    - Copper Ridge Rolls
    - Copper Eave Troughs
  - Copper Conductor Pipe

Particularly today . . . when so many building materials and construction standards are suspect . . . Hussey Copper, visibly evident on ridge roll, flashings, eave troughs and conductor pipe, stands as a symbol of careful material selection . . . quality construction.

For Hussey Copper has always had the industry's recognition for uniformly high quality, easy workability, and the ageless durability that only pure copper can give.

Identify your jobs with the best . . . let your own excellent craftsmanship and Hussey pure Copper and Copper Products symbolize the top quality of your job.

#### C. G. HUSSEY

Rolling Mills and General Offices: PITTSBURGH, PENNSYLVANIA Hussey Warehouses carry stocks of Copper and Brass Products for prompt shipment. (Continued from page 188)

As the rivets pass through the separator, the contact point touches the head of the rivet, and if the rivet does not come up to anodic specifications, a small relay is energized, and the relay throws out

#### CORRUGATED PLEXIGLAS

Illustration shows baggage racks made of .080" thick Plexiglas, installed in railroad passenger car. It is stated by the Rohm & Haas Co., Philadelphia, Pa., who developed the process for corrugating the sheet material, that the racks will withstand the impact of 25 pound lead weights, and that they will support these weights without visible deflection.

Corrugated Pexiglas may be made of either clear or colored acrylic plastic by custom fabricators. Design of corrugation, depth, frequency and shape, may be varied to suit individual requirements. The corrugations are made by forming the flat sheet between matched horizontal forms pressed together with air or hydraulic presses.



Plexiglas Corrugated Baggage Racks

The forms may consist of wooden bars sanded smooth and attached to heavy cross-braced plywood platens. Depth of corrugation may be regulated by varying the extent to which the forms mesh, allowance being made for the thickness of the sheet. For mass production, forming mold may be of polished metal

The actual forming is accomplished by placing the sheet, heated to 250° F across the bottom mold, the top mold being lowered at a pressure of approximately four pounds per square inch of plastic sheet. The forming pressures vary according to the height and frequency of the corrugation and the thickness of the material.

1 1 1

#### **NEW TYPE AIR** CONDITIONING UNIT

New type of air conditioning unit, covered by Patent No. 2,405,812, is announced by the American Coils Company, Newark, N. J. Quoting the maker, it is the first important improvement in removing moisture from the air in many

Scientifically, bodily discomfort results from two kinds of heat, sensible and latent. The former concerns temperatures. Latent heat involves relative humidities. The new unit, coping pri-

(Continued on page 192)



It was designed for use where irregular, eccentric or universal action makes a rigid seal impractical. Made from tough, flexible high tensile leather, it will seal in heavy lubricants, give protection against sand, water and grit, resist aging, wear, and oil. Sirvis engineers will design a similar boot for your special protection problem.

SIMIS

MECHANICAL LEATHERS

Products of

CHICAGO RAWHIDE MANUFACTURING CO.

1203 Elston Avenue

Chicago 22, Illinois

New York \* Philadelphia \* Detroit \* Los Angeles \* Cleveland \* Boston Pittsburgh \* San Francisco \* Cincinnati \* Portland \* Syracuse \* Peerig







is easy to apply with any standard make belt lacing machine, lacer, or it can be applied with a hammer by using the inexpensive Safety Tu-way Lacer.

Safety's patented binder bars hold every hook in exact alignment, distribute tension uniformly over the full width of the belt assuring efficient performance and long life. They also lap snuggly over by protect belt ends and prevent belt fraying.

#### SAFETY BELT-LACER CO.

5334 N. Menard Ave. Chicago 30, U.S.A.

(Continued from page 190)

marily with latent heat, removes moisture from the air without over cooling. The result is de-humidified air in which the normal evaporation of moisture, nature's provision for cooling, can take place without reducing the temperature of the air to a point conducive to shock. Self adjusting, the new unit permits more cooling on hot, dry days, and more removal of moisture on cool, humid days.

The operating principle of the conditioner is the simple law of physics that vapor pressures equalize themselves. A cooling coil inside an enclosure creates a low vapor pressure area. Air with moisture in the form of vapor, entering the unit is attracted to this low pressure area through small openings in the coil enclosure. There it condenses and is drained off. Air thus relieved of its moisture content flows past the enclosed coil without contacting it, and mixes below the coil with such small amounts of cooled air as entered the coil chamber by molecular attraction with the original vapor. The mixture emerges into the room at a degree of both sensible and latent heat most conducive to comfort

An incidental economy feature of the new unit is the use of a smaller condensing unit using less horsepower, since, with the principle employed, it is not necessary to lower air to the dew point to effect the removal of moisture.

The new unit is named the Amcoil Comfortaire Conditioner. Bulletin describes the conditioner in detail.

#### CHEMICAL ADDS 40 PER CENT TO TENSILE STRENGTH OF COTTON YARN

Science has found a way to increase the tensile strength of cotton yarns up to 40 per cent, Dr. Donald H. Powers, of Beston, director of textile research and development for Monsanto Chemical Company, announced in an address before the American Association of Textile Chemists and Colorists, at Winston-Salem, N. C.

The improvement is effected through mill application of a special submicroscopic collodial silica called Syton, which the company originally announced as a chemical to bake sheer stockings runresistant and to take the shine off serge.

"For nearly two years a careful study has been made on the effect of high polymers on the spinning of cotton," said Dr. Powers. "Out of this research by the National Cotton Council has come the finding that Syton is truly unique in its action.

"When applied to cotton sliver in concentrations of one to three per cent," he continued, "the inter-fiber friction was increased and it was possible to increase the tensile strength up to 40 per cent and to decrease the twist as much as 40 per cent."

Dr. Powers also stated that modified melamine resins have been developed which can be applied in extremely high

(Continued on page 195)

#### Plastics where plastics belong

The tip insulators on this welding electrode holder are excellent examples of the use of technical plastics where plastics belong ... using resistance to heat and impact and electrical insulating properties.

Synthane (our type of plastics) qualifies well for this job. Glass base laminated resists heat and impact fatigue, insulates and wears well.

For these reasons and others, Synthane finds its way into an army of applications requiring electrical, chemical, mechanical or combined specifications.



If you have a use for Synthane, let us help you before you design. Perhaps we can save you time and trouble with design, materials or completely fabricated parts. Write for the complete catalog of Synthane Plastics and their applications today.

Synthane Corporation, 7 River Road, Oaks, Penna.



where Synthane belongs

DESIGN . MATERIALS . FABRICATION . SHEETS . RODS . TUBES FABRICATED PARTS . MOLDED . MACERATED . MOLDED . LAMINATED

SYNTHANE TUBING FOR GENERAL

SYNTHANE SHEETS . . . Grades, finishes,

Get your copy before you plan with plastics



### SYNTHANE CORPORATION, 7 RIVER ROAD, OAKS, PA.

Please send me without obligation the complete catalog of Synthane technical plastics.

SYNTHANE

THIS COUPON BRINGS

195

(Continued from page 192)

concentrations to cottons, rayons and wools to impart improved crush resistance and resilience without embrittlement.

"This opens up the possibility of crushproof cottons, extremely resilient and soft rayons and resilient, washable woolens and worsteds," he continued. "With each fiber certain constructions and twists respond better to resin treatment, and it is an important problem to select the best-adapted fabrics."

#### FLEXIBLE COUPLING BASED ON GEAR-TOOTH DESIGN

A new flexible coupling based on the gear-tooth principle is announced by the Industrial Machine Works, Inc., South Hanover, Mass. Two identical end-pieces with involute gear teeth mate with a center-piece containing rack grooves runing transversely on opposite sides. The design provides simultaneous automatic



Torque capacity up to 1500 pounds in standard sizes

correction for angular and parallel misalignment. The center-piece is made of lubricant impregnated sintered bronze unless otherwise specified. Suitable for high speed application, IMW couplings have a torque capacity in standard sizes up to 1500 inch pounds. In addition to sizes up to 134 inch shaft diameter, the company will tailor-make units to meet special requirements. Printed matter available.

#### FIBERGLAS MAT FOR PLASTICS REINFORCEMENT

A new-type fiberglas mat, known as Fiberglas Mat Code T-35, designed as a base, or reinforcement for low-pressure laminating resins, is announced by Owens--Corning Fiberglas Corp., Toledo, Ohio. New mat is said to be particularly suitable for use in laminates that must possess high impact resistance and wet strength. The mat is composed of continuous strands of low-twist, textile-type Fiberglas yarns, laid down in the circular pattern and bonded with a special resin which is compatible with polyester lowpressure resins. The dip method can be employed to impregnate the mat, or it can be laid up dry and impregnated by spraying, dripping or injecting resin. The binder softens when the mat is warmed to 115° F., permitting preforming to a desired shape before impregnating. Warming will also permit drawing the mat after impregnation. It can be used on the production line to make formed parts by the rubber plunger technique, and for this method it may be pre-cut to the de-

(Continued on page 196)



When sales are endangered because of production difficulties, get materials, replacement parts, tools, dies, and needed machinery the *fastest* way! Specify Air Express!

No supplier or wholesaler is more than a matter of hours away when you specify Air Express delivery. And the costs are surprisingly low — drastically reduced from pre-war rates. Let Air Express solve your shipping problem — how to get it or deliver it quickly! Use this high-speed service to keep production flowing — and profits up!

#### Specify Air Express-a Good Business Buy

Shipments go everywhere at the speed of flight between principal U. S. towns and cities, with cost including special pick-up and delivery. Same-day delivery between many airport towns and cities. Fastest air-rail service to and from 23,000 off-airline communities in the United States. Service direct by air to and from scores of foreign countries in the world's best planes, giving the world's best service.

MILES	2 lbs.	5 lbs.	25 lbs.	40 lbs.	Over 40 lbs Cents per lb
149	\$1.00	\$1.00	\$1.00	\$1.23	3.07€
349	1.02	1.18	2.30	3.48	9.21c
349	1.07	1.42	3.84	6.14	15.35c
1049	1.17	1.98	7.48	12.38	30.70c
2349	1.45	3.53	17.45	28.24	79.61c
Over 2350	1.47	3.68	18.42	29.47	73.48c





# BRIGGS & STRATTON **ENGINES**

a Re-Statement of Policy

Loyalty to our customers of long standing . . their needs come first.

Production at highest possible levels...limited only by availability of materials that meet our exacting specifications.

No deviation from Briggs & Stratton high standards of engineering, manufacture and inspection.

Expansion of our world-wide organization of Authorized Service Stations...staffed with skilled, factory-trained personnel . . . and adequately supplied with repair parts.

These policies, re-affirmed now, are continued assurance to equipment manufacturers, dealers and users that "It's powered RIGHT ... when it's powered by Briggs & Stratton".

**BRIGGS & STRATTON CORPORATION** 

Milwaukse 1, Wisconsin, U. S. A.



Air-Cooled Power

(Continued from page 195) sired pattern, or drawn to the contour of the mold from flat sheet stock and additional resin added. Pressures of 50 to 75 psi at temperatures pf 250 to 300 degrees F., are employed to produce moulded parts in a curing time of three minutes in the mold.

#### NEW TEXTILE FINISHING AGENTS

Two new textile finishing agents are announced by Naugatuck Chemical Division of U. S. Rubber Co., New York. Both are milk-like liquids derived from petroleum and coal tar products. The first, a permanent starch called Kandar, is said to give cloth a lasting crispness, or starchiness, so that fabrics so treated can undergo repeated laundering or dry cleanings without becoming noticeably dulled or wilted, in addition to increasing the strength of the cloth five to ten percent, at an average cost of only half a cent per yard treated.

The second agent, Koloc, is said to reduce shrinkage of wool from the range of 30 to 40 percent to as little as two or three per cent, in addition to providing up to 50 per cent greater abrasion resistance. Both agents are invisible and are insoluble in laundering or dry cleaning solutions. They also protect the fabric against the acidic action of chlorine from bleaching solutions.

#### CONTROL SYSTEM PREVENTS DAMAGE BY ELECTROLYSIS

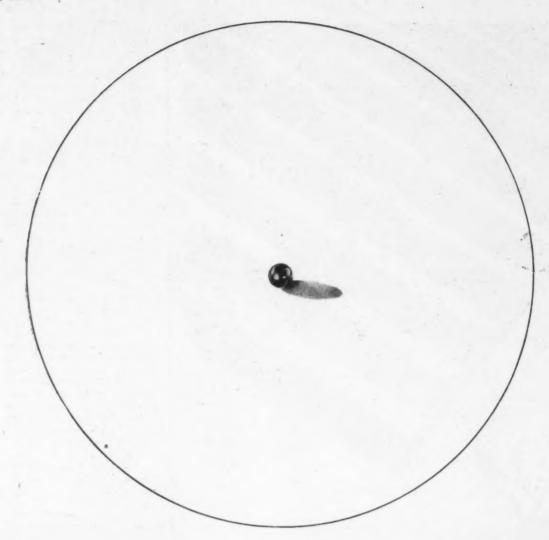
Development of what is termed a Stray Current Control System which is said to offer a solution to the problem of how to prevent the damaging effects caused by electrolytic action on underground pipe installations, including gas mains, oil and water lines, conduits, telephone cables and similar items, is announced by the Cook Research Laboratories, Chicago, Ill. The System weighs about 40 pounds. In the field it is attached to telephone poles, bridges or any facility near the points at which the deplating of pipes due to electrolysis is occurring. One terminal is attached to an offending rail and the other to the pipe. There is no definite restriction on the range of coverage for one of the systems, it is said. This will vary ac-cording to the resistance in the pipe and rail and the distance between the point of connection and the sub-stations which supply the power.

#### FREE BOOK ON COLOR CONDITIONING FOR INDUSTRY

"Du Pont Color Conditioning for Industry," a new 32-page booklet illustrated in full color, is available on request to the Finishes Division, Dept. M-6, Wilmington 98, Delaware.

Illustrating and describing years of research and practical experience with color to increase production, improve seeing conditions and create a better working environment, the booklet makes

(Continued on page 198)



#### IT TAKES 28 HOURS TO GRIND AND LAP THIS FEDERAL BALL

See this 1/4" ball? Twenty-eight hours of grinding and lapping are required to round out its dimensions before it can take its place in a Federal Ball Bearing assembly.

To you as a bearing user that's important, for *only one* bad ball ruins a bearing's efficiency, impairs the performance of your equipment, interrupts production.

But no bad balls can get by the sensitive "fingers" of Federal's electrically controlled inspection gauges. Each ball must be uniformly spherical within .000025" and the variation in diameter in any bearing is not more than .00005". Made of through-hardened chromium alloy steel, each is crush-tested for load-bearing strength, micro-tested to reveal hidden pits or scratches and polished to its lustrous superfinish.

So it goes through every Federal manufacturing step. More than 100 individual production, inspection and cleaning operations go into a single-row radial ball bearing. Every fourth operator is an inspector. Add them up and you have positive precision performance on production lines everywhere...in machine tools, farm equipment, electric motors, marine equipment, automobiles and airplanes.

That's why, wherever tolerances are tight, specify Federal Ball Bearings...in any range or size.

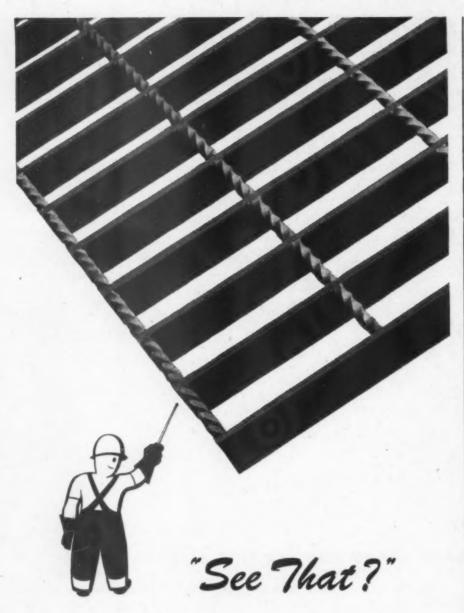
THE FEDERAL BEARINGS CO., INC. . POUGHKEEPSIE, NEW YORK

Makers of Tine Ball Bearings

Detroit: 2640 Book Tower-26 • Cleveland: 402 Swetland Building-15 Chicago: 8 S. Michigan Ave.-3 • Los Angeles: 5410 Wilshire Blvd.-36

#### FEDERAL BALL BEARINGS

ONE OF AMERICA'S LEADING BALL BEARING MANUFACTURERS



That's the electroforged bond between the twisted cross bar and bearing bars which distinguishes Blaw-Knox Steel Grating — making it a rigid, one-piece "material" easy to install... Provides safe, sure footing at all times... admits maximum light and air.

BLAW-KNOX DIVISION of Blaw-Knox Company

2075 FARMERS BANK BUILDING PITTSBURGH 22, PA.

BLAW-KNOX STEEL GRATING

(Continued from page 196)
clear the fundamental principles on
which color conditioning is based.
The "Three-Dimensional Seeing" treat-

The "Three-Dimensional Seeing" treatment of machines is depicted with photographs of actual installations. The Safety Color Code for Industry is also outlined and color Conditioning is shown.

#### NEW FORTIFYING RESIN FOR VARNISHES

New oil-reactive, fortifying type resin which extends drying oils 50% to 100% without impairing film strength, durability or adhesion, is announced by the Neville Company, Pittsburgh 25, Pa. Name of new resin is Nevillac RT. It is said to impart improved durability in varnishes made of identical oil and resin constituents; improve water resistance of oleoresinous coatings; eliminate skinning; and assure color fidelity and freedom from after-yellowing; and to make for notable improvement in gloss and fullness.

Exhaustive exposure data demonstrate that varnishes properly formulated with Nevillac RT show an increase in protective life, superior flexibility, freedom from rust, and resistance to checking. In oleoresinous coatings it produces a marked increase in the kauri-reduction value. The Neville Company also states that the resin does not detract from the acid or alkali resistance in chinawood or similarly chemically resistant oils. Overnight drying is secured where normal amounts are used. Freedom from tack is good.

Seven-page booklet describing the properties and functions of the new product is available.

#### LOW-PRESSURE PLASTICS EXHIBIT INCLUDES BOAT HULLS

Industrialists of the Low-Pressure Division of The Society of the Plastics Industry will hold its second conference and exhibit at the Edgewater Beach Hotel, Chicago, from January 23rd to 26th inclusive. This is distinct from the National Plastics Exposition to be held beginning May 5th, also in Chicago.

Large, contoured products now made under low-pressure methods will be on exhibit, such as boat-hulls, plane fuselage sections, luggage, panelling, pre-fabricated house sections, and other reinforced products.

The decision to hold this second conference was made in view of the many new developments in materials, products, and processes in the low-pressure field. The Division plans to pattern this second convention along lines followed at the first meeting held in Chicago in 1946.

A symposium of technical papers will be held on January 23rd and 24th; the exhibit will be shown January 23rd to 26th.

Mr. J. E. Stokes, of Bakelite Corporation and Chairman of the Low-Pressure Industries Division Steering Committee, announces Robert J. Brinkema of Egmont Arens as conference Chairman.



FOR INFORMATION OR SERVICE . CONSULT YOUR NEAREST SET-UP BOX MANUFACTURER



# NATIONAL PAPER BOX MANUFACTURERS

AND COOPERATING SUPPLIERS

Liberty Trust Building

Philadelphia 7, Penn.

# Among the ASSOCIATIONS

# W. A. Towle Named President of Connecticut Association

Annual Thanksgiving Meeting At Seymour Marks Largest Gathering in Association's History — George Renard Guest Speaker

The Purchasing Agents Association of Connecticut held its annual Thanksgiving dinner meeting at the First Congregational Church, Seymour, Connecticut, on November 26th. Two hundred and fifteen members and guests were present, making it the largest meeting ever held by the association

Association president W. J. Roemer presided over the after-dinner meeting. Fred Harvey, secretary, reported three new memberships and one transfer. William J. Horowitz, national director, reported on the District Conference of the New England Purchasing Agents Association, held recently at Providence, R. I., which he praised highly. He urged that members make it a point to attend the 1947 Conference which is scheduled to be held in Springfield, Mass.

Fred Space, chairman of the nominating committee and toastmaster for the evening, presented the nominations for the 1947 slate of officers which was unanimously approved by all present. These association officers for 1947 include:

President, W. A. Towle, Jr., Wallace Barnes Co., Bristol, Conn.

First vice-president, Ward Stevens, Conn. Mutual Life Ins. Co., Hartford, Conn.

Second vice-president, Raymond Bingham, International Silver Co., Meriden, Conn. Secretary, F. A. Harvey, Ansonia & C Co., Ansonia, Conn.
Treasurer, R. E. Sargent, C. H. Dex-

Treasurer, R. E. Sargent, C. H. Dexter & Sons, Inc., Windsor Locks, Conn. Nat'l. Director, W. J. Roemer, The Bristol Co., Waterbury, Conn.

Members named Directors include:

Second Vice President Raymond Bingham, and President W. A. Towle

Robert C. Nicol, Sponge Rubber Prod. Corp., Derby, Conn.; J. A. Reynolds, Manning, Maxwell & Moore, Bridgeport, Conn.; Frank B. Bentley, Electric Boat Co., Groton, Conn.; Wilfred L. Hanford, Bush Mfg. Co., Hartford, Conn.; Thomas J. Latham, R. Wallace & Sons Mfg.

Co., Wallingford, Conn.; and D. E. Merriman, The Stanley Works, New Britain, Conn.

George Renard, Executive Secretary of the National Association, was the guest speaker. Mr. Renard discussed production in this post-war era and the important role purchasing agents must take in helping to avoid another recession. He emphasized the importance of the purchasing executive keeping himself thoroughly "briefed" on ever changing economic conditions and industrial trends. Illustrating this he mentioned the inadequacy of relying solely upon such barometers as the stock market, the Dow-Jones Index, etc., in the evaluating of the current situation. Any system which reflects or portrays a change after it has taken place is too late from the purchasing agent's standpoint. He must constantly look ahead, anticipate changes, and adapt himself so as best to meet the situation. While discussing this question of "barometers" he dwelt to some extent on the Haney P/V chart method which reflects the statistics of price and volume as pertaining to the commodity market, and which is said to be accurate in indicating trends.

"The economist deals with averages but the purchasing agent must deal with specific commodities", he said, adding that "for successful economy we must have a combination of factors—a high total income, employment, and full productivity".

Mr. Renard also brought up the question of inventories, quoting U. S. Dept. of Commerce statistics to the effect that inventories have reached an all time high, which even though not excessive in re-

(Continued on page 202)



OFFICERS OF CONNECTICUT ASSOCIATION FOR 1947

Left to right: Secretary, F. A. Harvey; First Vice President Ward Stevens; President W. A. Towle; National Director, Wm. J. Roemer; Treasurer, R. E. Sargent.

# BATTERY-POWERED BATTERY-POWERED TRUCKS ARE SAFE! "Battery-Powered Trucks can be used safely in the safely in the

"Battery-Powered Trucks can be used safely in practically all industrial occupancies...They have an excellent fire record...The Factory Mutual Laboratories have not found it necessary to make a special investigation of battery-operated trucks because of the slight fire hazard involved in their use. Standard trucks purchased from leading manufacturers can be expected to be reasonably fire safe. For extrahazardous locations special trucks ...are available"

#### ASSOCIATED FACTORY MUTUAL FIRE INSURANCE COMPANIES

\*Bulletin No. 11.24 on the Fire Hazards of Industrial Trucks and Tractors, July, 1946. Quoted by permission.

\*Copies of this bulletin dealing with battery-powered trucks and other types will be sent on request.

\*Modern construction, pioneered by Philco, gives 10% or more additional capacity in same battery space.

FOR 50 YEARS A LEADER IN STORAGE BATTERY DEVELOPMENT The time-proved safety of battery-powered industrial trucks in materials handling work is, in reality, a plus! Battery power costs less, too...less by an astonishing margin where full capacity equipment is provided and utilized. In many such high-demand operations, the 10%\* extra capacity and 30% longer life of Philco "Thirty" Storage Batteries have introduced a new era in low-cost handling. Write today for latest catalog of specification data.

PHILCO CORPORATION . STORAGE BATTERY DIVISION . TRENTON 7, NEW JERSEY

PHILCO

Famous for Quality the World Over



Executive Secretary George A. Renard of N.A.P.A., Wm. J. Roemer, retiring president of Connecticut Association and Fred G. Space in preprandial huddle.

(Continued from page 200) lation to other current figures, are still too high. He added that from a purchasing agent's point of view a high inventory such as a year's supply of some materials—such as copper or lead—may be a very good thing; but in some products it is rank speculation.

Mr. Renard closed his address with much the same advice he gave the association at last year's meeting: "Brief yourselves regularly. Have emergency landing fields selected and don't depend too much on the Republicans for their piano playing may not develop into a perfect symphony."

#### SPRINGFIELD ASSOCIATION ENTERTAINS FORMER MEMBERS

Stuart F. Heinritz, Editor of PUR-CHASING Magazine, New York, N. Y. was guest speaker at the November meeting of the Purchasing Agents Association of Springfield, Springfield, Ohio. He spoke on the topic of "The Cost & Value of a Purchasing Department".

Special feature of the meeting was the attendance of several former members of the association, now no longer connected with purchasing.

#### PLANT VISITATIONS RESUMED BY BUFFALO ASSOCIATION

The first plant visitation since the war, sponsored by the Purchasing Agents Association of Buffalo, took place on November 20th. Approximately 120 purchasing agents and company executives visited the Bethlehem Steel Plant, Lakawanna, N. Y. The group inspected operations at the coke ovens, the open hearth, where they witnessed a tap, the blast furnaces, and the blooming mill, where they watched the ingots being rolled into billets.

#### COPPER SITUATION DISCUSSED ST. LOUIS ASSOCIATION

Mr. Lennox Chew, Chief of the Brass Mill Branch of the Copper Section, CPA, addressed the meeting of the Purchasing Agents Association of St. Louis, held November 26th at the Club Caprice, Hotel Coronado, St. Louis, Mo. Mr. Chew spoke on the subject of "The Copper Situation Today and the 1947 Outlook". In conjunction with his talk Mr. Chew answered numerous questions submitted in advance by members of the association, greatly adding to the benefit derived from the meeting.

D. M. Baker, chairman of the Commodity Committee, led the commodity discussion. New members welcomed into the association at the meeting include: Hilbert W. Hagnauer, Griesedieck Bros. Brewry Co.; Claude C. Billups, Barrett Equipment Co.; and Harold E. Kershaw, Broderick & Bascom Rope Co.

On the 14th of December the association held its Christmas Party at the Hotel Statler. Lee Bussmann was toastmaster, and after the preliminaries of cocktails and dinner members and guests spent a pleasant evening dancing.

#### PRESIDENT ALJIAN VISITS WEST COAST ASSOCIATIONS

Continuing his nationwide tour of local associations, George Aljian addressed the Purchasing Agents Association of Oregon at a dinner meeting held in the Multnomah Hotel, Portland, Oregon, November 11th. On the 17th of November he was principal speaker at the Northern California's annual Executives' Night meeting held at the Hotel St. Francis, San Francisco, California.

#### EUROPEAN IMPRESSIONS—1946 WASHINGTON ASSOCIATION

The Purchasing Agents Association of Washington met on December 12th at the Washington Athletic Club, Seattle, Wash. President R. Guy Frederick presided over the meeting and vice-president Stanley E. Ringheim was responsible for arranging the evening's program.

Wesley F. Rennie, general secretary of the Seattle Y.M.C.A., and recently appointed associate general secretary of the Y.M.C.A. World Committee, was the guest speaker. Mr. Rennie, who recently returned from an extensive tour of Europe where he made a study of Y.M.C.A. participation in international affairs, spoke on the subject of "European Impressions—1946".

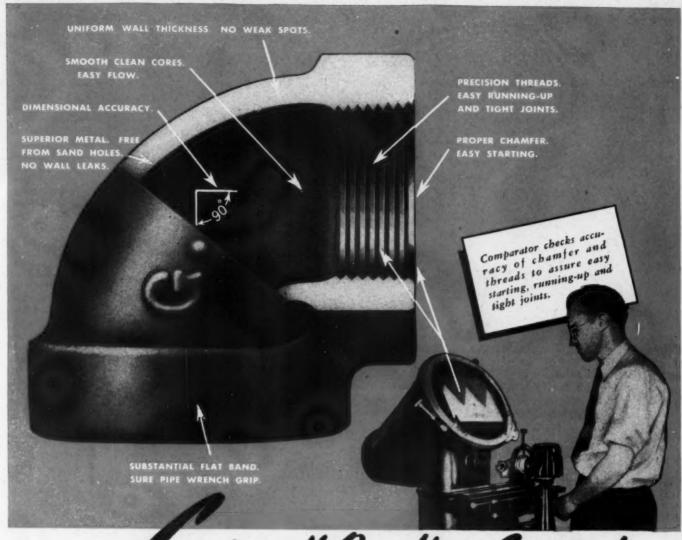
An added feature was a colored film, "A New World Thru Chemistry", shown through the courtesy of the E. I. du Pont de Nemours & Co. Ralph Bryant, chairman of the discussion committee, and B, F. Curtis, purchasing agent, Puget Sound Machinery Depot, lead the discussion that followed on late National Association releases.

The Educational forum was held before the dinner meeting. Professor Don H. Mackenzie, of the School of Business Administration, University of Washington, opened the forum which was on the subject of "Inventory Control". He was assisted by Ed. A. Westfall, Stetson-Ross Machine Co., and Everett Stark, Sand Point Naval Air Station. The forum was presided over by Harold D. Mitchell, Housing Authority of King County, and chairman of the educational committee.

#### "ABANDONMENT OF THE INDIVID-UAL" ROCHESTER ASSOCIATION

James A. Emery was guest speaker at the Purchasing Agents Association of Rochester Company Executive's Night meeting, held at the Hotel Sheraton, Rochester, N. Y. on November 20th. Mr. Emery, who has served as counsel for the National Association of Manufacturers for the past 35 years, helped in the organization of the National Industrial Conference Board & War Labor Board. He spoke on the topic of "The Abandonment of the Individual". Many association members were present, bringing with them a good number of their company executives.

(Please turn to page 204)



# rinnell Quality Con EXTRA RELIABILITY IN PIPE FITTINGS

#### AT NO EXTRA COST GRINNELL

From original material to final inspection, Grinnell Pipe Fittings are checked time and time again with modern testing equipment to assure leakproof, safe connections in your piping installations. The result is uniformly high quality fittings at no extra cost. Available through branch warehouses and jobbers everywhere. Write for Catalog 5-B. Grinnell Company, Inc., Executive Offices, Providence 1, Rhode Island.

#### for complete PIPING SERVICE

Manufacturers of . . .

- OPIPE and TUBE FITTINGS
- **GENGINEERED PIPE HANGERS**
- OPREFABRICATED PIPING
- SAUNDERS DIAPHRAGM VALVES
- OTHERMOLIER UNIT HEATERS
- . JOB WORK CASTING
- MUTOMATIC SPRINKLERS and other FIRE PROTECTION SYSTEMS
- · AMCO HUMIDIFICATION and COOLING SYSTEMS
- OTHER PIPING SPECIALTIES

Suppliers of ...

- OPIPE, VALVES and FITTINGS
- SPECIALTIES for PLUMBING, HEATING, WATER WORKS and GENERAL PIPING

#### **Branch Warehouses**

Atlanta 2, Ga. Charlotte 1, N. C. Chicago 9, Ill. Cleveland 14, O.

Houston 1. Tex.
Kansas City, Mo,
Los Angeles 13, Cal.
Minneapolis 15, Minn.
Seattle 1. Wash.

New York 17, N. Y.
Oakland 7, Cal.
Philadelphia 34, Pa.
Sharper 1, R. I.
Scattle 1, Wash.

St. Louis 10, Mo.
St. Paul, Minn.
Sacramento 14, Cal.
San Francisco 7, Cal.



WHENEVER PIPING IS INVOLVED

# Double Feature Programs Increase Dayton Attendance

Double feature programs inaugurated by the Purchasing Agents Association of Dayton proved an important factor making for increased attendance at the regular monthly, it is reported. The meetings are featured by a discussion session in which procurement problems are analyzed by speakers, followed by question and an-

act similar to the Case bill will be passed; that public works will be cut in an effort to balance the national budget; that there would be an easing of the housing material situation; and that any tax reduction would benefit only the lower income group.

Guest speaker for the evening was Wm.



Officers and principal speakers at November meeting of Dayton association: Left to right: Richard Kelly, national director; James F. Murray, first vice president; E. E. Reeves, secretary; Wm. M. Rooney of Steel magazine, Cleveland; E. G. Sander, second vice president; Dr. Henry Hodges, Dayton economist; and, T. E. Dimke, president.

swer periods; and, the presentation by regular speakers on feature subjects.

At the association's November meeting, Economist Dr. Henry Hodges reported on the paper market, in the course of which he presented general economic data that proved of much interest. In the course of his regular monthly predictions he said: Republicans will not throw out all of the New Deal; the Wagner Act will not be repealed; an

M. Rooney, news and markets editor of Steel magazine. Mr. Rooney said that 12 to 15 million tons of steel production had been lost because of the steel and coal strikes. This volume, he said, would have provided 900,000 more autos; 1,000,000 more refrigerators, and thousands of other items. He closed his remarks with the statement that steel demand would be less in 1947, with an estimated production of 63 million tons.

#### BRITISH COLUMBIA ASSOCIATION HEARS RADIO EXECUTIVE

"Is Radio a Good Citizen" was the subject of an address by Dorwin Baird, Director of Production, Radio Station C.J.O.R., Vancouver, at the British Purchasing Agents Association November meeting at the Hotel Vancouver, Vancouver, B. C.

Mr. Baird compared the Canadian and the British broadcasting systems, bringing out the salient differences between them. Britishers pay a \$5.00 yearly li-cense fee. This nets the BBC approximately 50 million dollars per year, which goes a long way toward covering the cost of operations. In Canada, however, the license fee is only \$2.50, bringing in a yearly total of about three million dollars. Were the CBC to be self-sustaining through license fees alone, every Canadian operating a receiving set would have to pay approximately \$50.00 yearly. The Canadian system is partly supported by radio advertising, whereas the BBC, being entirely government-owned, utilizes no advertising.

L. C. F. Kirby, purchasing agent, Van-

couver General Hospital, gave a complete report on the District Council Meeting held at Salt Lake City in October. J. B. Watson, purchasing agent Silbak Premier Mines Ltd., and R. A. Baker, Powell River Co. Ltd. delivered lectures at the Salesmanship Courses sponsored by the Junior Board of Trade. New members in the B. C. association include: J. E. McKinnon and A. H. Redgate, H. A. Borgerson Ltd; G. F. Winters, Vancouver Motors Ltd.; and P. G. Wyckoff, Department of Reconstruction & Supply.

#### FEATHER PARTY & DANCE BALTIMORE ASSOCIATION

The Purchasing Agents Association of Baltimore held its twelfth annual Christmas Feather Party & Dance on December 18th, at the Lord Baltimore Hotel, Baltimore, Md. The party was informal and attended by numerous members & guests, and featured ten bingo games, with fine feathered birds being distributed as first and second prizes.

#### C. F. WILLIAMS NAMED PRESIDENT CAROLINAS-VIRGINIA ASSOCIATION

C. F. Williams, Durham, N. C., of Erwin Cotton Mills, was elected president of the Carolinas-Virginia Purchasing Agents Association, succeeding M. Potter of Raleigh, N. C., at the concluding meeting of the association's one-day convention held in Charlotte, N. C., November 22nd. Other officers elected include: Guy W. Fortune, Greensboro, N. C., vicepresident, and J. E. Doxey, Durham, N. C., secretary-treasurer (re-elected).

Guest speaker at this session was Forrest H. Shuford, North Carolina State Commissioner of Labor, who spoke on "The Economic Effects of Strikes". Commissioner Shuford declared that "it is popular now to blame everything on strikes, just as it was an easy way out during the war to blame everything on the war". He insisted that American production is now greater than ever before in peace-time in nearly all industries, but scarcities still are being experienced because of the pent-up demand. In closing Mr. Shuford commented that reconversion to peace-time production has brought relatively few strikes in North Carolina.

relatively few strikes in North Carolina.

J. M. Knowlton, Duke Power Co. economict, stated that all the United States depressions have been caused by overabundance. "The real American economic disease" he said, "is our ability to produce in every basic line. Going back in American history, one finds that our real troubles were caused by surpluses, not shortages". He also devoted considerable time to discussing U. S.-Russian relations, for whose future he does not hold a very optimistic view, declaring that "the conflict between Russia and ourselves is intercultural in the completest sense of the word, and between the two there is no common ground on which to base a peace".

#### SEATTLE PURCHASING AGENTS VISIT METAL PRODUCTS PLANT

Members of the Purchasing Agents Association of Washington visited the plant of the Northwest Metal Products Co., Kent, Wash., November 27th, and following a noon luncheon at the plant, witnessed the fabrication of numerous sheet metal products throughout the large plant.

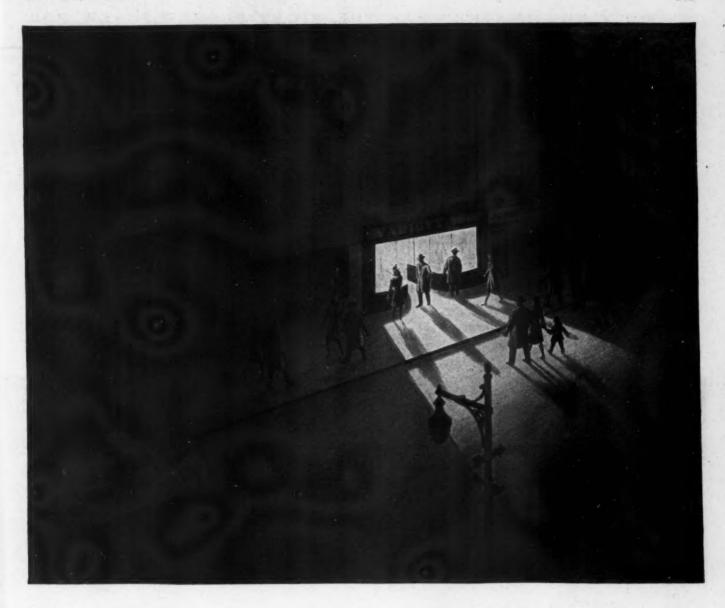
#### PAST PRESIDENT'S NIGHT SYRACUSE ASSOCIATION

1 1

The November meeting of the Purchasing Agents Association of Syracuse, held November 26 at the Roof Garden, Onondaga Hotel, Syracuse, New York, was designated Past President's Night. Each of the past presidents was presented with an engraved gavel, noting the year during which he held office.

Stuart F. Heinritz, Editor of PUR-CHASING Magazine, New York, N. Y. was guest speaker, addressing the meeting on the subject of "The Cost & Value of a Purchasing Department."

(Please turn to page 208)



#### THIS STORE DOES NOT HAVE TO CLOSE

Despite all precautions of utility companies, accidents beyond their control can interrupt the normal supply of current . . . can put lights out. This can happen anywhere, at any time. It has happened. And the result may be both dangerous and costly. Many stores, schools, auditoriums, hospitals and other buildings are safeguarded against light failure. They are equipped with Exide Emergency Lighting Units, which instantly and automatically take on the lighting load when other sources fail.

There are Exides for every storage battery need. Exides furnish safe, dependable motive power for the efficient, time-saving electric industrial truck and mine haulage units; for Diesel engine cranking, fire alarm circuits, and for many power needs in telephone and telegraph companies,



radio stations, railroads, ocean vessels and aircraft. And on millions of cars, trucks and buses, they continue to prove that "When it's an Exide, you start."

For 58 years, the name Exide has stood for dependability, economy, safety and long life. Information regarding the application of storage batteries for any business is available upon request.

THE ELECTRIC STORAGE BATTERY CO.
Philadelphia 32

Exide Batteries of Canada, Limited, Toronto

### Which One Is Strong Enough?

The BR'STOL "Hex" socket screw is as much different from the ordinary hex as it is from its running mate in the Bristol "B-Line" — the BRISTO "Multiple-Spline" screw.

Its greater strength comes from the fact that, like the "Multiple-Spline", it is formed by cold-upsetting and extruding high-grade alloy steel, providing extra surface hardness and elasticity, especially under heads of cap screws.

Threads are also formed by extrusion which, instead of destroying hardened outer diameters as with die-cutting, preserves and further intensifies the surface, giving the threads extra strength at root as well as at crest.

Assembly is easier because extruded threads make more exact lead and pitch.

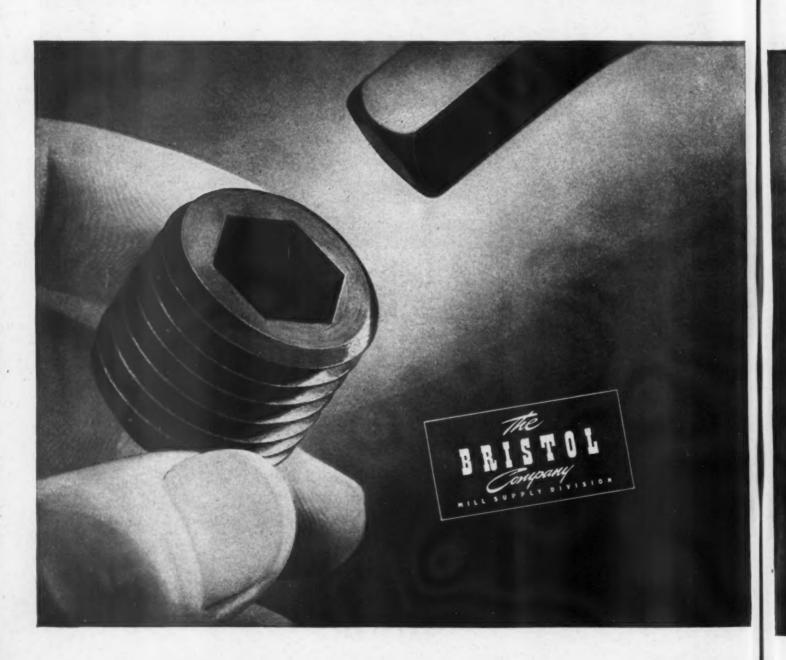
BRISTOL "Hex" cap and set screws are made in a complete size range down to and including No. 4 wire. In the smaller sizes, the BRISTO "Multiple-Spline" socket screw is often preferred,



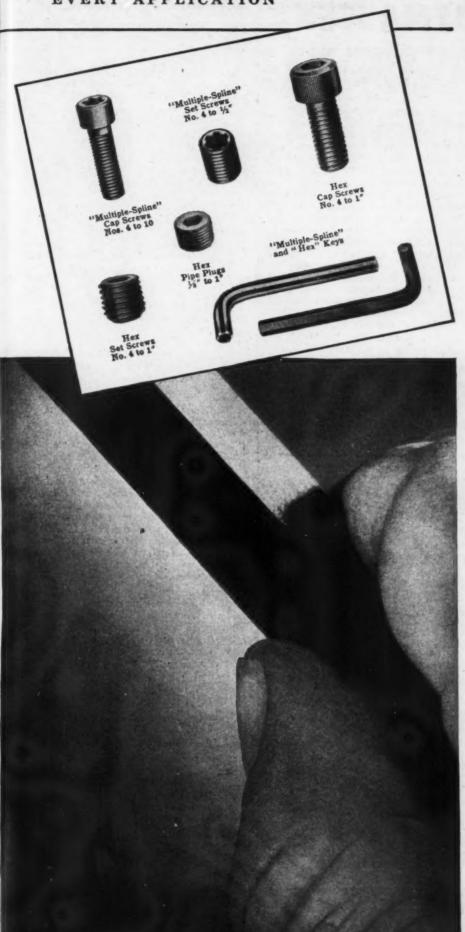
especially where vibration or frequent disassembly is a factor. The unique shape of socket and key permits tightening far

beyond the point where a hex socket would round out or burst.

For top strength in socket screws, select the right style from the Bristol "B-Line"—the only one that gives you both—made by a manufacturer with 33 years' experience in socket screws. Order from your distributor.



#### EVERY APPLICATION





# SEE HOW EASY IT IS TO PASTEN BILTS WITH BRISTOL'S "B-LINE" BELT HOOKS

#### LINING

Card lines up hook with grooves in bel fastening machine



#### REMOVING

Hooks pierce belt, uniformly spaced to distribute pull evenly



#### SPACING Card lifts off easily after fastening

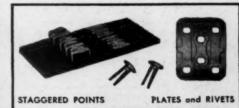
Order from your distributor

#### BRISTOL'S "B-LINE"

Transmission Belt Hooks

FAST and TRUE

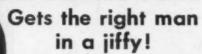
ALSO CONVEYOR BELT LACINGS

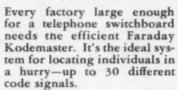




132 Bristol Road, Waterbury 91, Conn.

### **FARADAY KODEMASTER**





Kodemaster is a unique, compact, fool-proof control for old or new signal systems. May be set up with any number or combination of bells, buzzers, horns, Kodaires, chimes, sirens.

For time-saving signaling, and low installation and maintenance cost, install Faraday Kodemaster. Can be installed by any competent electrician. FARADAY UNIPACT units

FARADAY UNIPACT units are interchangeable, "as easy as plugging in a toaster."

At your electrical distributor's

### FARADAY

ELECTRIC CORPORATION
Adrian, Michigan

# ARMSTRONG CUTTER SERVICE

Whatever the cutting speed you need, no matter what the material to be machined, the ARM-STRONG System of Tool Holders provides correctly designed ARM-STRONG TOOL HOLDERS and cutters of proper type for the job.

For ordinary machining at the speeds indicated, we recommend:

up to 150 F.P.M.

ARMSTRONG HIGH - SPEED Bits, Blades or Cutters in standard ARMSTRONG TOOL HOLDERS.

up to 300 F.P.M.

ARMALLOY (cast alloy) Bits and Blades in ARMSTRONG CA TOOL HOLDERS.

up to 600 F.P.M.

ARMIDE (Carbide-Tipped) Cutters in ARMSTRONG Carbide TOOL HOLDERS.







#### ARMSTRONG BROS. TOOL CO.

e Tool Holder People" 303 N. Francisco Ave., Chicago, U.S.A Eastern Warehouse & Sales: 199 Lafayette St., New York

#### WESTINGHOUSE MOVIES AT SAGINAW VALLEY MEETING

The November meeting of the Saginaw Valley Purchasing Agents Association was held Tuesday, November 12, at the Bancroft Hotel, Saginaw, Michigan. President W. C. Thompson presided over the session which was attended by 28 members and guests.

Vice-president Lawrence Smith reported on the district meeting held at Jackson, Mich., which he attended as the association's delegate. It was announced that R. G. Matley, of Detroit, vice president of District No. 4, N.A.P. A., would be the guest speaker at the February 14th meeting. A nominating committee comprising G. W. Cooke, A. C. Sager and L. J. Stonehouse was appointed to nominate a slate of officers for 1947.

George H. Fischer then presented two movies prepared by Westinghouse Electric Corp., entitled "Summer Storm" and "Dawn of Better Living".

#### COLOR DYNAMICS WASHINGTON, D. C.

1 1 1

Colonel Ralph S. Childs, authority on color dynamics, discussed that subject at the December 10th meeting of the Purchasing Agents Association of Washington, D. C., through the courtesy of the Pittsburgh Plate Glass Company. Colonel Childs gave a demonstration of color combinations and spoke at length on the importance of selection of colors to be used in hospitals, schools, institutions, offices, manufacturing plants, etc., dependent upon the degrees of natural and artificial light. In the course of his talk he emphasized the adverse effect of eye strain with resultant nervous tension, brought on by impractical color and lighting values.

The following new members were elected to association membership: Charles I. Ford, American Red Cross; George Sturman, Federal Works Agency; and John A. Henderson, Bureau of Ships, Navy Department.

#### VALLEY P. A. ASSOCIATION ORGANIZED AT YOUNGSTOWN

1 1 1

The Valley Purchasing Agents Association was recently organized at Youngstown, Ohio, representing industrial purchasing agents in the Mahoning and Shenango Valley area. Officers of the new association are: President, W. F. Zarbaugh, Cold Metal Products Company; Vice President, James D. Sloan, Youngstown Sheet & Tube Company; Secretary, D. B. Watson, Grinnell Corporation, Warren, Ohio; Treasurer, Cal. R. Wood, Aetna-Standard Engineering Company. The group plans to become affiliated with the National Association of Purchasing agents.

(Please turn to page 210)

# **New Handbook on**

HEAT TREATING **ALUMINUM ALLOYS"** 

HEAT TREATING ALUMINUM ALLOYS REYNOLDS METALS COMPANY THE "WHAT, HOW and WHY" OF THE

METALLURGY AND HEAT TREATMENT OF ALL TYPES OF ALUMINUM

"Heat-Treating Aluminum Alloys," the latest Reynolds technical handbook is a gold mine of practical information for everyone working with aluminum alloys, both the nontechnical man and the highly trained technician.

For the non-technical reader Section One explains in simple language the underlying principles of metallurgy and heat treatment of aluminum. For the metallurgist there are accurate charts of annealing and heat-treating cycles and soaking times, detailed technical discussions of common thermal treatments, charts and tables of typical mechanical properties of 96 different alloys and tempers, valuable information on possible difficulties and their cure.

"Heat-Treating Aluminum Alloys" contains one hundred and forty-four pages, 81 illustrations, 13 tables, 18 photomicrographs, 2 charts; an itemized index for quick reference; and a glossary of terms for simple, easily understandable reading.

This is just one of several recent technical aids put out by Reynolds Metals Company that help bring you up to date on the latest developments in the aluminum industry. Just fill out the coupon below and mail with your check. Your copy will be sent you at once. Reynolds Metals Company, 2525 South Third Street, Louisville 1, Kentucky.

#### WELDING ALUMINUM

A new handbook on Welding Aluminum giving detailed information on 11 aluminum welding processes from edge preparation to finishing. Illustrated with photographs, charts and tables on properties, gauges, sizes and strengths. Price: \$1.00.

#### ALLOY SELECTOR

Just two settings to place at your finger tips the mechanical properties, chemical composition, physical constants, thermal treatments, and specification numbers of 18 aluminum alloys. Simple to operate. Price \$1.00.

#### METALS WEIGHT CALCULATOR

One of the handiest calculating devices ever developed . . . simple . . . accurate . . . fast. Calculates weights of aluminum, magnesium, steel, brass, copper, and nickel. Only \$.50.

#### MACHINING ALUMINUM ALLOYS

124 pages packed with practical up-to-date facts about machining aluminum alloys. Eight doublepage charts of easily usable data on tooling, speeds and feeds for eight important types of machining operations. Prices \$1.00.

PLEASE PRINT OR TYPE CAREFULLY

Reynolds Metals Company 2525 South Third Street, Louisville 1, Kentucky

Please send me "Heat-Treating Aluminum Alloys." I enclose \$1.00 (check or money order)\* to cover the cost of printing and mailing.

NAME

TITLE

COMPANY

ADDRESS

CITY

ZONE

- Please send me a copy of "Welding Aluminum." I enclose \$1.00.
- Please send me a copy of "Machining Aluminum Alloys." I enclose \$1.00.
- Please send me a Reynolds Aluminum Alloy Selector. I enclose \$1.00. ) Please send me a Reynolds Weight Calculator. I enclose 50 cents.

\*Please do not send purchase orders, cash or stamps!



### Well, Maybe Not Dirty Looks

...but there's a Turco Industrial Cleaning Compound for just about everything else. For Turco scientists, through famous Turco Surface Chemistry\*, have developed hundreds of specialized cleaning products and processes for every type of business, industry and institution. There's a skilled Turco Field Serviceman in your neighborhood. Call him today.

\* The scientific application of all the factors in cleaning to a specific problem.



os & Pactorios : 125 W. 48th St., Chicago 9 - 1886 Heads York Office: 21 West Street, New York 6 - Offices & Wareh G. W. Doace & Company Limited, 751 Victoria Square, N

#### CHRISTMAS PARTIES AMONG LOCAL ASSOCIATIONS

The Purchasing Agents Association of Eastern New York held its fourth annual Christmas party, December 5th, at the Albany Country Club, Albany, N. Y.

On the 9th of December the New England Purchasing Agents Association held its Christmas meeting and party in the Main Ballroom, Hotel Statler, Boston, Mass.

The Purchasing Agents Association of Alabama met on December 10th at the Book Mountain Country Club, Birmingham, Alabama, for the annual Christmas party.

The Purchasing Agents Association of Houston held its Christmas party December 11th at the River Oaks Country Club, Houston, Texas.

The Christmas party of the Purchasing Agents Association of St. Louis was held in the Ballroom of the Hotel Statler, St. Louis, Mo., on December 14th.

The Purchasing Agents Association of Fort Worth met at the Colonial Country Club, Fort Worth, Texas, on December 14th for its annual Christmas party.

The Cincinnati Association of Purchasing Agents held its annual Christmas party for members and their ladies only, at the Hotel Gibson, Saturday, December 14th.

The Rhode Island Purchasing Agents Association held its Annual Stag Xmas party at the Pawtucket Golf Club, Friday, December 13th. Among the features of the evening were a raffle and boxing.

The Purchasing Agents Association of Buffalo held its annual Christmas party for members, honorary members and Gaveleers only, at the Hotel Statler, De-

cember 11th.

The Purchasing Agents Association of New Orleans held its annual Christmas party at the Jung Hotel December 16th, dedicating the event to the association's past presidents, all of whom attended.

The Purchasing Agents Association of New York held its annual Christmas party December 17 at "Penn Top", spacious penthouse of the Pennsylvania Hotel, New York, N. Y.

The Purchasing Agents Association of Pittsburgh held its annual Christmas party for members and their wives, December 17th at the Pittsburgh Athletic

cember 17th, at the Pittsburgh Athletic Association.

#### THREE-YEAR PURCHASING COURSE OFFERED BY FENN COLLEGE AND CLEVELAND ASSOCIATION

1 1 1

The Purchasing Agents Association of Cleveland has been cooperating with Fenn College for a number of years in offering one-year courses in Purchasing. This year, however, due to the enthusiastic response and an all-time high enrollment a three-year course is being of-fered. Members of the association cooperate and lecture to the classes on the different phases of purchasing. George A. Fay is Education Committee Chairman, and W. E. Gombert is in charge of the classes.

(Please turn to page 214)

# CONFIDENCE... how much is it worth?





N 1841, two years before the first telegraph line was installed in this country, and when there were but 27 states in the Union, John August Roebling was inspired with the idea of making a new kind of rope of unheard of strength and flexibility. His confidence in his idea caused him to risk everything he had on the development of his new rope.

How much is his confidence worth to Industry today, which couldn't turn a wheel without the modern wire rope?

Today, the John A. Roebling's Sons Company invests much time, effort and money in the development of improved products to keep alive the confidence of its many customers.

Roebling values this confidence as its greatest asset. That's why it offers you the greatest value for every dollar you invest . . . in any Roebling product.

#### HOW TO SAVE WIRE ROPE DOLLARS

Wire rope is a machine of many parts and, like any machine, even the finest of wire ropes can be destroyed quickly through faulty installation or improper maintenance. To insure against this possibility, Roebling established its Field Engineering Service. Every Roebling Field Engineer has a thor-

ough knowledge of wire rope . . . its types, its

uses, its features and limitations. This knowledge plus the experience he gains in his daily contacts can be a great asset to you...help-ing you to solve those tough wire rope problems . . . giving you more service for each wire rope dollar.

Get to know your Roebling Field Engineer. Call him at your nearby Roebling Branch Office.

#### JOHN A ROEBLING'S SONS COMPANY

Branches and Warehouses in Principal Cities

#### FOR EXAMPLE - "RIUF CENTER" STEEL WIRE ROPE



Roebling entrusts your confidence in Roebling and Roebling products to the performance of its "Blue Center" Steel Wire Rope. It is the best rope Roebling knows how to make. It is available as preformed or non-preformed, in a complete range of sizes and constructions to meet a great variety of operating conditions. Its uses are almost unlimited and its performance is consistently economical.

#### TRENTON 2, NEW JERSEY

Manufacturers of Wire Rope and Strand • Fittings • Slings • Screen, Hardware and Industrial Wire Cloth • Aerial Wire Rope Systems • Hard, Annealed or Tempered High and Low Carbon Fine and Specialty Wire, Flat Wire, Cold Rolled Strip and Cold Rolled Spring Steel • Ski Lifts • Electrical Wire and Cable • Suspension Bridges and Cables . Aircord, Aircord Terminals and Air Controls . Lawn Mowers

### ROEBLING

A CENTURY OF CONFIDENCE



# YOU FURNISH THE STEEL





Filing Cabinets



**Gravity Conveyors** 

PRODUCTS

Steel producers haven't been able to provide us with enough steel to make full use of our facilities. These facilities, and ample skilled manpower to operate them, can be utilized for quick production of a wide range of products. Here are two ways Lyon has helped other companies...and can help you if you have steel on hand, or available:

PRODUCTS, INCORPORATED

Adjustable Shelving

# LYON will make the product



**Electrical Control Units** 



Home Appliance Stands



Water Cooler Containers

CONTRACT PRODUCTION



Storage Battery Racks



Special Parts



Office Equipment Stands



**Testing Cabinets** 

# OF SHEET STEEL ITEMS GAUGES FROM B TO 30

#### STANDARD LYON PRODUCTS

To complete your plant expansion or conversion program, we will accept your sheet steel (12 to 24 gauge and certain sizes of band steel) and supply you pound for pound with any selection of "Lyon Standard Products" currently in production, a few of which are: Steel Shelving, Lockers, Shop Equipment, Kitchen Cabinets, Filing Cabinets, and Gravity Conveyors.

#### 2 SPECIALIZED CONTRACT PRODUCTION

We will manufacture to your specifications: assemblies, sub-assemblies or parts, in gauges No. 8 and lighter up to No. 30; in Lyon production run quantities.

Get in touch with your Lyon Dealer . . . or your closest District Office

General Offices: 133 Monroe Avenue, Aurora, Illinois . Branches and Dealers in all Principal Cities



Higher abrasion resistance — less wear; longer tap life Higher toughness with hardness — less chance of tooth breakage; less tooth chipping of the cutting edge Higher red hardness — ability to tap efficiently at drill speeds or even

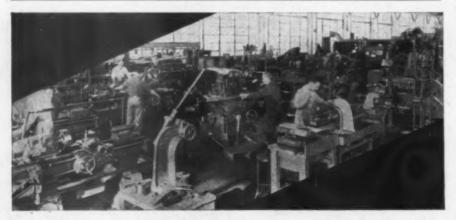
higher
Higher torsional strength — greater resistance to twisting and breakage

These claims are backed up by the performance, in all kinds of service, of hundreds of thousands of "M-11" taps produced prior to this announcement.

"M-11" taps are now available at no extra cost-from stock-in practically all standard and many special sizes.
"M-11" is used also in all of Detroit's thread rolls, thread plug gages

and thread milling cutters.





#### Rebuilt by EXPERTS ONLY, Botwinik Machine Tools Keep Production Up, Costs Down

The Botwinik organization, one of the largest rebuilders of machine tools in the nation, has helped many hundreds of concerns in all types of industry to keep their production on the upswing at minimum cost. Botwinik's skilled engineering, expert rebuilding, and an immense stock, available on a moment's notice, are at your command. Write, wire or phone, whatever your requirements.

USE	THIS	COUPON	TO	OBTAIN	COMPLETE	LISTINGS	OF	OUR	CURRENT	STOCK

		NIK,	BRO	THER	OF	MA	\$5.,	INC.,	13	She	rmon	St.,	Worcest	er 1	, Mass		
1	Veme															 	
	Address															 	

Botwinik Brothers of Mass., Inc.

#### SURVEY ON PRICES AT LOUISVILLE MEETING

The November meeting of the Purchasing Agents Association of Louisville, Ky., featured the regular monthly summary of the economic situation by Pro-W. Williams. In conjunction with the discussion he made a quick check of the opinions of the 65 purchasing agents present with regard to the outlook for prices. One of the questions indicated that 25% considered prices as dangerously high; 66% considered prices high but not dangerous; and 9% felt that prices were right, considering present costs & other factors.

The opinions of the group regarding the trend in prices for the next 6 to 8 months brought the following results: rapid rise-21%; moderate (5-10%) rise -5%; leveling off-18%; moderate (5-10) decline-11%; and rapid declinenone.

G. W. Leep lead the panel discussion on "Purchasing Policies & Responsibilities". New members welcomed into the association at the meeting include: John H. Brown, Henry Vogt Machine Company; Richard Clark, C. T. Dearing Printing Company; George C. Reincke, Reynolds Metals Company; and V. H. Hulitte, Ford Motor Company.

#### HUNTERS AND SPORTS NIGHT MILWAUKEE ASSOCIATON

The December 10th meeting of the Milwaukee Association of Purchasing Agents, held at the Elk's Club, Milwaukee, Wisc., was designated "Hunters and Sports Night". This is an annual feature of the association; and this year Lloyd Larson, Sports editor, Milwaukee Sentinel, was guest speaker, presenting the "Sports Highlights".

New active members welcomed into the association include: Victor Anderson, Milsco Mfg. Co.; John R. Foulks, Bolens Products Division; M. A.Krajniak, Milwaukee Lace Paper Co.; James A. Papin, Metal Specialties Co.; and Malcolm T. Olson, Steel Tube & Products Co.; Wesley J. Budziszweski, George J. Meyers Mfg. Co.; and Willie Thomsen, The Dumore Co., were accepted as associate members.

#### HOUSTON ASSOCIATION HAS OIL BUYERS GROUP

H. R. Hansen, Director of Purchases for the Superior Oil Co., Houston, Tex., is chairman of an Oil Buyers Group which has been formed within the Purchasing Agents Association of Houston. The group holds monthly meetings.

#### 1 1 1 "THIS IS OUR JOB" CLEVELAND ASSOCIATION

"This Is Our Job" was the subject of an address by Tell Berna, general mana-ger of the National Tool Builders Association of Cleveland, held at the Hotel Cleveland, Cleveland, Ohio.

(Please turn to page 216)

# **N·B·M BRONZE PARTS**BETTER BRONZE PARTS



our molding and pouring techniques produce
"thin-skinned" castings with good solid metal
immediately below the surface. Result: we can
cast so close-to-size that you save up to
30% in weight plus proportionate savings in
expensive machining time.

Whether you buy N-B-M castings in the rough or machined you save substantially.

N.B.M BRONZE CASTINGS
We put more service into them—
you get more service out of them



**Brake Shoe** 

NATIONAL BEARING DIVISION

PLANTS IN: ST. LOUIS, MO. . PITTSBURGH, PA. . MEADVILLE, PA. . JERSEY CITY, N. J. . PORTSMOUTH, VA. . ST. PAUL, MINN. . CHICAGO, ILL.



#### DISCUSS MATERIALS SITUATION AT BUFFALO MEETING

Fifty-eight members and twelve guests attended the meeting of the Buffalo Purchasing Agents Association, November 13th, at the Statler Hotel, Buffalo, N. Y. In conjunction with the Commodity Forum & Discussion, lead by Harry Grow, Dr. Martin Brumbaugh, Professor of Statistics, University of Buffalo, gave a talk on the current situation in raw materials. He pointed out the importance of watching inventories, especially during the current price fluctuations. He also warned against overbuying, adding that overbuying of supplies and raw materials in 1937 caused the depression of 1938, and urged that labor either produce more each day or that industry install machinery to step up volume production.

National Director Bob Cavanaugh reported on the 8th District meeting held in New York. Three new members—Dan F. Phelps, International Milling Co.; George Munger, Ford Motor Company; and Frank Maley, Bell Aircraft Corp., were welcomed into the association. The resignation of Bob Cavanaugh, who is taking a new job in the sales department of the Buffalo Tank Corp., was accepted and John Pfisterer was appointed director and national director of the association, filling Mr. Cavanaugh's unexpired term.

Reid Collins served as discussion leader at the Education Meeting, held November 20th, where the topic "Escalator Clauses" was discussed. On December 11th the association held its annual Christmas party.

#### INTERNATIONAL TRADE MEMPHIS MEETING

1 1 1

"The Mechanism of International Trade" was discussed by Professor Charles S. Brown, Memphis State College, at the November meeting of the Memphis Association of Purchasing Agents, held at the Hotel Gayoso, Memphis, Tenn.

Dr. Charles C. King, representing the Memphis Civic Clubs, told of the work that the clubs are doing as a group for the citizens of Memphis, especially the needy in and about the various outlying districts.

On December 14th the annual Christmas Dance was given at the Gayoso Hotel. A large number of members, their families and friends, attended; and numerous attendance prizes, donated by firms represented in the association, were distributed.

# 1 1 1 HUMORIST ENTERTAINS CHICAGO ASSOCIATION

The December 12th meeting of the Purchasing Agents Association of Chicago was held in the Louis XVI Room of the Hotel Sherman in that city. The meeting was highlighted by the presence of Strickland Gillilan, well known humorist and author of "Off ag'in, on ag'in, gone ag'in Finnegan".

#### NORTHWESTERN PENNSYLVANIA AND PITTSBURGH ASSOCIATIONS HOLD JOINT SPECIAL MEETING

A special meeting of the Purchasing Agents Association of Pittsburgh was held in conjunction with the Purchasing Agents Association of Northwestern Pennsylvania at the Duquesne Club, Pittsburgh, Pa., on November 2nd. The meeting was held to entertain the members of the National Executive Committee who were assembled in Pittsburgh for a two days' session.

In addition to the guests from the National Executive Committee several representatives from the Cleveland Association were present. Tom Halbrook, Henry Ledebur, and Thomas D. Hudson, presidents of the Pittsburgh, Northwestern and Cleveland associations respectively, each addressed a few words to the gathering. Ralph O. Keefer, Sixth District President, extended his greetings and introduced National President George Aljian, who gave an entertaining address, touching on various pertinent subjects of interest to his audience.

### 7 7 7 CANTON AND AKRON HOLD JOINT MEETING

The Akron and Canton Purchasing Agents Associations held a joint meeting in the Onesto Hotel, Canton, Ohio, in November on the occasion of a visit by National President George W. Aljian and Sixth District Vice President Ralph O. Keefer. Approximately seventy-five guests were present at the meeting.

President Aljian made some very timely remarks on the responsibility of the purchasing agent during this uncertain period of prices and supply. He warned that the time for writing orders under government price control and allocation was past and that every purchasing agent must be alive to the changing conditions and prove himself worthy of his responsibilities. He urged that more attention be given to cooperation with engineering, production, and sales directors.

Vice President Keefer confined his remarks to a brief resume of recent activities in the district and of the National Association.

#### SALESMEN'S NIGHT AT MONTREAL ASSOCIATION

The Purchasing Agents Association of Montreal designated their December 17th meeting, held in the Ballroom, Mount Royal Hotel, Montreal, Canada, as "Salesmen's Night". Murray R. Chipman, Montreal manager, McLean-Hunter Publishing Co., addressed the meeting on the topic "Ambassadors of Enterprise". In his speech he dealt in part with the significant role of the salesman in the enterprise system—the stake he has in it—and the great contribution he makes to it. Entertainment was provided by a Salesmen's Variety Show, directed & produced by Alan Potter, chairman of the entertainment committee.

(Please turn to page 218)



One of the world's greatest,
most progressive industries, the American automotive industry is
a tremendous purchaser of nuts and bolts of all sizes
and shapes . . . standards and specials. Typical are the
bumper bolts (illustrated) . . . small but obviously vital fasteners
. . . produced by Buffalo Bolt Company for one of our nation's
largest manufacturers.

Standard or special, all circle ® products have the same uniform controlled quality that serves to make your production more efficient . . . less costly.



DID YOU KNOW that each machine in this hattery of Buffalo Bolt roll threaders has a capacity of 43,000 bolts per working day?



# **BUFFALO BOLT COMPANY**

NORTH TONAWANDA, N. Y. • SALES OFFICES IN PRINCIPAL CITIES Export Sales Office: Buffalo International Corp., 50 Church Street, New York City



• Time lost, a distinct bluish tint to nearby air...and all because of a pinhole or thick thread in a piece of inferior tracing cloth.

Arkwright guards against accidents like this by making sure all thick threads are removed from the base cloth even before it is bleached. You'll find one safeguard like this after another – all the way through Arkwright's special

mechanical process – to prevent pinholes and other irregularities, and to guarantee that every roll comes to you with a uniform surface and lasting translucency.

See for yourself how much better Arkwright is. Send for free working samples. Sold by leading drawing material dealers everywhere. Arkwright Finishing Co., Providence, Rhode Island.

#### All Arkwright Tracing Cloths have these & important advantages

- 1 Erasures re-ink without "feathering"
- 2 Prints are always sharp and clean
- 3 Tracings never discolor or become brittle
- 4 No surface oils, soaps or waxes to dry out
- 5 No pinholes or thick threads
- 6 Mechanical processing creates permanent transparency





#### MOTION PICTURE ON GRINDING SHOWN ROCHESTER BUYERS

A motion picture entitled "The First Principles of Grinding" was featured at the November 13th meeting of the Rochester Association of Industrial Buyers, held at the Normandie Hotel, Rochester, N. Y.

The movie, made available by the Carborundum Company of Niagara Falls, was shown by Mr. Hastie who is in charge of the company's educational program. Mr. Hastie traced the history of the present day abrasive wheel from its founding as shown in the movie, the procedure employed in the manufacture of abrasive wheels, their diversified applications, and types of grinding equipment to which they are applicable. The showing of the picture was followed by a discussion of abrasives.

New members welcomed into the association include Messrs. Whelehan and Kuder, both from the Pfaudler Company.

#### BI-MONTHLY LUNCHEONS AGAIN INDIANAPOLIS ASSOCATION

The Indianapolis Purchasing Agents Association has resumed its customary practice, suspended during the war, of holding bi-monthly luncheon meetings. John B. Little, of the Indianapolis office of the FBI, was the principal speaker at the first of these luncheons, held November 7th at the Athenaeum, Indianapolis, Ind.

#### REGULAR NOVEMBER MEETING PITTSBURGH ASSOCIATION

The regular monthly meeting of the Purchasing Agents Association of Pittsburgh was held November 19th at The Pines, Perry Highway, Pittsburgh, Pa. Guest speaker for the occasion was Stuart F. Heinritz, Editor of Purchasing Magazine, New York, N. Y., who spoke on the subject: "The Cost and Value of a Purchasing Department".

#### UTAH ASSOCIATION VISITS HIGH OCTANE PLANT

1 1 1

The Utah Purchasing Agents Association visited the Utah Oil Refining Company's high octane plant, Salt Lake City, Utah, on Wednesday December 4th. Following the tour of the plant a dinner was held at the Hotel Utah, accompanied by a brief program, sponsored by the refining company.

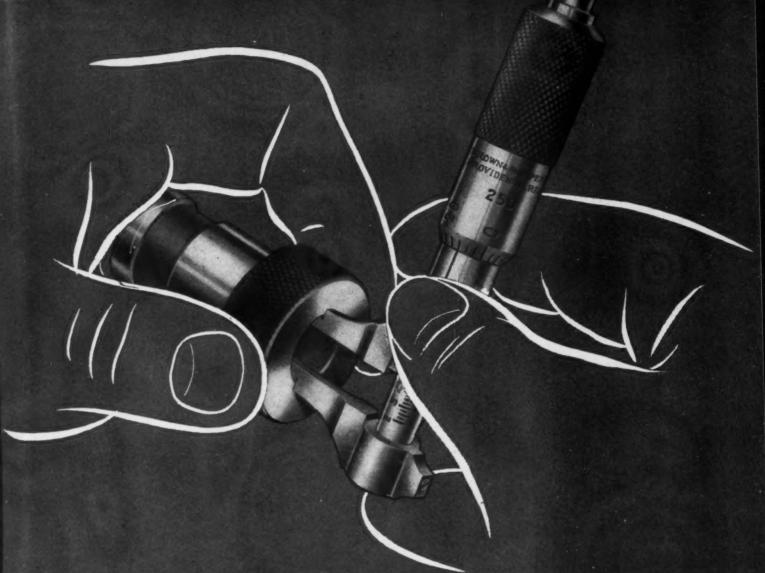
#### TRI-STATE ASSOCIATION CONFERENCE PLANNED

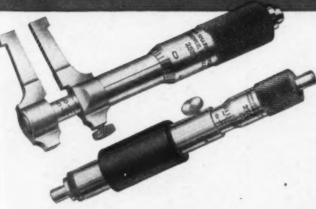
The Tri-State Association Conference of western associations of purchasing agents, is scheduled to be held at the St. Francis Hotel, San Francisco, California, Friday & Saturday January 17-18, 1947.

(Please turn to page 220)

# PRIDE OF THE MACHINIST







Inside Micrometers, Nos. 252 and 270, shown above, are a part of the wide line of Brown & Sharpe Machinists' Tools which include rules, combination squares, bevel protractors, straight edges, vernier tools, dial test indicators and many others.

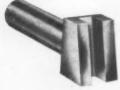




We urge buying through the Distributor

• Whether it's the machinist's own micrometer or one issued to him from the tool crib, a Brown & Sharpe tool is an old friend. That's more than familiarity. It is respect for a tradition of fine precision tool making that goes back almost to the beginning of American industry. It is the knowledge of how precisely Brown & Sharpe makes tools . . . of such details as the end-to-end accuracy of the micrometer screw, the easily read graduations and figures and the care that's taken to make accuracy last through the long life of the tool. Such tools have always been the wisest possible tool investment. Brown & Sharpe Mfg. Co., Providence 1, Rhode Island, U. S. A.





Solvol and KleenKut, Stuart's water-mixed cutting fluids, while they share in many a machining "miracle," are not "miracle" compounds. They are expertly engineered and manufactured products, whose performance is unsurpassed among water-mix, or "soluble" cutting fluids.



Stuart's Solvol, a "super soluble" because of its unusually high cutting quality, will handle jobs beyond the scope of conventional water-mix products, including many so-called all-purpose compounds.



Stuart's KleenKut, a more conventional product, is still an outstanding "soluble" cutting compound with a long record of superior performance.



Try Solvol or Kleen-Kut water-mixed cutting fluids the next time you want a machining "miracle."



Have you received your copy of "Water-Mixed Cutting Fluids"?

D.A. Stuart Oil co.



Stuart Oil Engineering Goes With Every Barrel

#### BUFFALO MEMBERS VISIT BETHLEHEM STEEL PLANT

Members of the Purchasing Agents Association of Buffalo held their first post war plant visitation on November 20th at the Bethlehem Steel Plant in Lackawanna, N. Y. Some 75 members inspected the huge operation, stopping at the coke oven, and then an open hearth furnace where a tap was witnessed. Following this activity, the group visited the blast furnaces, and thence went through the blooming mill.

On November 14th, several of the members were guests of the Hamilton-Peninsular meeting at Niagara Falls, Ont., at the General Brock Hotel.

A dinner-dance is scheduled to be held at the Buffalo Trap & Field Club, for members and friends, on Saturday, February 1st.

#### PERSONNEL DEPARTMENT FUNC-TIONS TULSA MEETING

1 1 1

"Functions and Limitations of a Personnel Department in Industry" was the topic of an address by W. W. Finlay, general manager and personnel director of the Guiberson Corp., Dallas, Texas, at the November 12 meeting of the Purchasing Agents Association of Tulsa, Oklahoma.

On November 26, Clark A. Dunn, vice-director, Engineering Experiment Station, Oklahoma A. & M. College, was the guest speaker. Reports on the A. P. I. meeting at Chicago were also read. The December 10 meeting was devoted to the election of officers for 1947, details of which will be printed at a later date.

The annual Christmas party, designated as President's Ladies Night Dinner and Dance was held December 13th at the Tulsa Club.

#### MOTION PICTURE ON STEEL TEXAS PANHANDLE

1 1 1

Thirty-five members of the Purchasing Agents Association of the Texas Panhandle were present at the November meeting, held at the Capitol Hotel, Amarillo, Texas. Following the customary dinner there was a short business session after which C. E. McClelland, United States Steel Corp., showed a sound and technicolor film entitled "Steel—Man's Servant".

#### ATOMIC ENERGY DISCUSSED FORT WORTH ASSOCIATION

1 1 1

The Purchasing Agents Association of Forth Worth held their November meeting at the Worth Hotel, Fort Worth, Texas, on the 19th.

Dr. Joseph Morgan, Department of Physics, Texas Christian University, was the guest speaker. Dr. Morgan spoke on the subject "The Atomic Bomb and Peace Time Benefits of Atomic Energy".

(Please turn to page 222)

### CUTS HOURS IN YOUR FACTORY



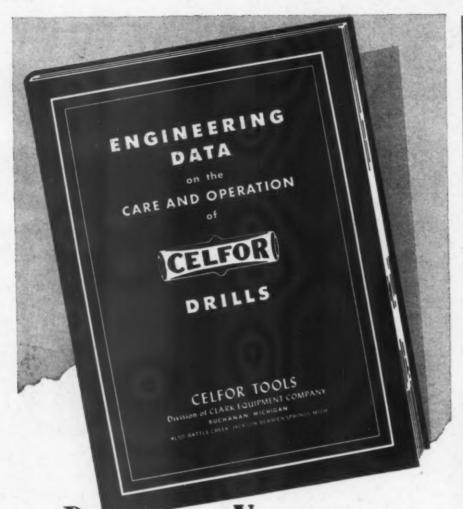
tailoring problems!

Pantasote Wynsote: Plastic coated fabric. In

beautiful grains and smart new colors.

THE PANTASOTE CORP. OF N. J.

ADDS PROFITS IN YOUR SHOWROOM



# BOOK OF THE YEAR for men who sell, use and care for TOOLS

It sticks strictly to useful facts concerning tools—how to use and maintain tools in order to get maximum efficiency and long life. The idea back of it was to produce the best book of its kind ever compiled—and we believe it is just that.

#### A Good Book to Keep Handy

Glad to send you a copy if requested on your business letterhead.

# CELFOR TOOLS Division of CLARK EQUIPMENT COMPANY BUCHANAN, MICHIGAN OTHER PLANTS - BATTLE CREEK, JACKSON, BERRIEN SPRINGS, MICHIGAN

Products of CLARK . TRANSMISSIONS . ELECTRIC STEEL CASTINGS AXLES FOR TRUCKS AND BUSES . AXLE HOUSINGS . BLIND RIVETS INDUSTRIAL TRUCKS AND TRACTORS . HIGH-SPEED DRILLS AND REAMERS METAL SPOKE WHEELS . GEARS AND FORGINGS . RAILWAY TRUCKS

Prices on CLARK products will not be advanced in excess of increased costs

#### AMGOT IN ITALY NEW ORLEANS MEETING

Colonel Eberhard Deutsch, a former military government officer in Europe, spoke on "Activities and Accomplishments of AMGOT in Italy and Austria", at the November 11th meeting of the Purchasing Agents Association in the Jung hotel. Colonel Deutsch was legal advisor to General Mark W. Clark with the United States forces in Austria.

#### WAA SPEAKER AND CHRISTMAS PARTY, TWIN CITY ASSN.

Edward S. Clark, Deputy Regional Director, War Assets Administrator, spoke on "Review of War Assets Administration Activities to Date", at the December 11th meeting of the Twin City Association of Purchasing Agents, at the Minneapolis Athletic Club. This was a joint business-Christmas meeting, and at the conclusion of the business session, the members enjoyed the usual "Santa Claus" part of the program. "Santa" distributed one-dollar gifts brought by the members.



Two presidents—George W. Aljian of the National and Margaret Byrne, Women's Divn., Washington Association at joint National Night meeting of Baltimore-Washington associations.

#### ALLEGHENY LUDLUM OPENS DAYTON WAREHOUSES

1 1 1

New warehouse equipped with the latest facilities for stocking tool steels, was officially opened December 6th in Dayton, Ohio, by the Allegheny Ludlum Steel Corporation of Pittsburgh, Pa. The warehouse is located at 1270 McCook Avenue, in the industrial section of Dayton, and its operation will be under the supervision of R. J. Swan, District Sales Manager. Stocks include tool steel bars, tool bits, and Carmet-tungsten carbide cutting tools and blanks.

(Please turn to page 224)



#### INDUSTRY'S Fastening-wise LEADERS CHOOSE PHILLIPS SCREWS

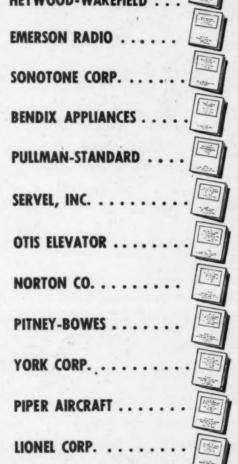
INDEPENDENT STUDIES! AUTHENTIC! UNBIASED! Prepared by investigators from the James O. Peck Co., industrial research authorities, who talked with key men in top U. S. plants using Phillips Recessed Head Screws in product assembly.

"Assembly savings 50%" . . . "Breakage reduced 90%" ... "Eliminate \$40.-a-day spoilage." In their own words, America's best assembly men tell how they apply the proved advantages of Phillips Screws to speed driving, end driver skids, eliminate unsightly burrs, improve product appearance.

Each report is fully illustrated - a fact-jammed digest of modern assembly practice, information you never hoped to see in print, inside facts you would pay good money to get - now, FREE, to you.

#### 12 Reports Now Ready

These reports have been offered as they were published throughout the year. If you haven't already sent for them, get all twelve now. Read them! Learn why, more and more, Phillips Screws spot the profitplanned products!



# HILLIPS Recessed SCREWS

Wood Screws . Machine Screws . Self-tapping Screws . Stove Bolts

American Screw Co. American Screw Co.
Atlantic Screw Works
Atlantic Screw Co.
Central Screw Co.
Chandler Preducts Cerp.
Centinental Screw Co.
Cerbin Screw Co.
American Hdwe. Corp.
The H. M. Harper Co.
International Screw Co.
Lamson & Sessions Co. SOURCES

Milford Rivet and Machine Ce National Lock Co. National Serew & Mfg. Co.

Pheell Manufacturing Co. Pheoli Manufacturing Ce.
Reading Screw Co.
Russell Burdsall & Ward
Bolt & Nut Ce.
Seevill Manufacturing Ce.
Shakeproof Inc.
The Southington Hardware Mfg. Co.
The Stell Company of Canada, Ltd.
Sterling Bolt Ce.
Stronghold Screw Products, Inc.
Welverine Bolt Cempany

1		
	Phillips Screw Mfrs.,	
	c/o Horton-Noyes	_
	2300 Industrial Trust Bldg., Providence,	R

Send me the 12 Assembly Reports on Phillips Screws. Company Address.

Mail the coupon NOW



#### CHICAGO ACCESSORIES FIT ANY POWER TOOL



#### THE MOST COMPLETE LINE AVAILABLE



OVER 500 - ALL FINEST QUALITY

THE RIGHT ONE FOR EVERY JOB!

WRITE FOR 64-PAGE CATALOG

CHICAGO WHEEL & MFG. CO.

1101 West Monroe Street, Dept. PG, Chicago 7, Illino

#### RAILROADS TEST ADHESIVE FOR PREVENTING LOAD SHIFTING

Tests of "Load-Lok," an adhesive especially designed to keep shipments from sliding about in railroad cars, trucks and steamships, thus cutting transit losses, are now being conducted at Jacksonville, Fla., under supervision of the Association of American Railroads.

Load-Lok, a product of National Adhesives, New York, is automatically applied in two parallel strips to the bottom surface of each shipping container, which is then lifted off the loading and glueing conveyor and glued into the unitized load. It has a high sheer strength which prevents sidewise or lenthwise shifting of the stowed units, yet a single sharp upward blow of the hands against its low tensile strength releases each con-

tainer for easy unloading.

The current demonstrations are at plants of shippers along the Atlantic Coast Line Railroad and Seaboard Airline Railroad, and are under direction of Edward Cahill, chief engineer of the freight loading and container branch, Association of American Railroads. Dahill is assisted in the tests by J. L. Walker, Freight Claim Agent, Seaboard Airline Railroad; A. L. Batts, Freight Claim Agent, Atlantic Coast Line, and Lester Klempner, manager of National Adhesives' southeastern division. tests are being conducted at plants of the larger shippers of citrus fruits, canned goods, and bottlers' items such as salad dressings and fruit juices, throughout Florida, and are being witnessed by other shippers of the state.

Shipments on which Load-Lok is being applied during these tests are being sent to all parts of the United States, and full reports are being made on their condition at arrival.

Shifting and sliding of containers, especially paper board cartons, and bags, has resulted in huge annual losses to shippers and carriers, because of breakage, leakage and other damage to merchandise. Freight claim payments for all commodities amounted to \$78,791,370 in 1945. Shippers have found it almost impossible to stack boxes and bags in railroad cars tightly enough to avoid shifting during transit, unless the packages are jammed against the doors of the cars; then, when the cars are opened, the packages are often damaged by the scraping of the sliding doors.

Earlier tests, according to National Adhesives reports, show that with Load-Lok used, breakage has been reduced, for example, to: in a seven-car liquor shipment, nine bottles broken, while, in unglued shipments breakage has averaged 30 to 120 bottles per car.

In applying Load-Lok, the glue cost is insignificant, and the only equipment required is an inexpensive glue pan installation on the loading conveyor.

National Adhesives has issued a special handbook on the Load-Lok process. Copies are available from the company's headquarters, 270 Madison Avenue, New York, N. Y.

(Please turn to page 226)



#### **CHASE WAREHOUSES**

have these Miscellaneous items in stock Brass nuts and bolts, copper rivets and burs—all these and more—are carried in stock at Chase warehouses.

There are 20 Chase warehouses coast to coast. Phone the one nearest you. If they do not have what you want in stock, they'll try to get it for you from one of the many other Chase warehouses.

Remember - CHASE SERVICE IS AS CLOSE AS YOUR PHONE





Chase BRASS & COPPER CO

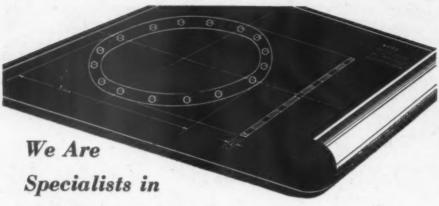
Waterbury 91, Connecticut

This is the Chase Network—handiest way to buy brass

- INCORPORATED

ALBANY? ATLANTA? BALTIMORE BOSTON CHICAGO CINCINNATI CLEVELAND DETROIT HOUSTON? INDIANAPOLIS JACKSONVILLE? KANSAS CITY, MO. LOS ANGELES MILWAUKEE.

MINNEAPOLIS NEWARK NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURGH PROVIDENCE ROCHESTER? SAN FRANCISCO SEATTLE ST. LOUIS WASHINGTON? (\*Indicates Soles Office Only &



**DESIGNING & PRODUCING** 

# SPECIAL WASHERS and SMALL STAMPINGS

If you have a problem on Special Washers or Small Stampings, send it to us! More than a quarter-century of specialization has given us the "know how" to handle your requirements capably and economically. Perhaps we already have

the tools that are needed for your next job (we have more than 10,000 sets of tools on hand). If not, our experienced Tool & Die Department will be placed at your disposal. Send us your blueprints or specifications.

THE MASTER PRODUCTS CO.

PATTERN,— CRATING LUMBER TIMBERS \* PLYWOOD

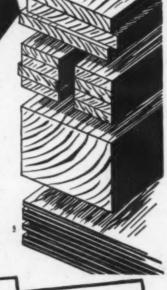
#### Here's Lumber Service Made to Order

Pattern Lumber — from old growth logs. Select quality, Mahogany, White Pine, Kiln-dried in our own plant. Cut to length.

Crating Lumber — for safe, economical shipments. Lengths, thicknesses practical for your purpose.

Timbers — from the tall fir country. Cut, trimmed to your needs. Teco Connectors, timber engineering

Plywood — wide variety of sizes, kinds, laminations. For interior, exterior use. Ideal for patterns. Your one order gets the attention of all three of these big lumber suppliers.





DOUGHERTY

CLEVELAND 5, OHIO WILLOW RANCH, CALIF, Phone: Diamond 1200 KEYSTONE
PITTSBURGH 3, PA

LUMBER COMPANY

## FEDERAL TAXATION PUSHES COMMODITY PRICES TO HIGH LEVELS

"The lifting of OPA controls will speed up the introduction of new postwar models of wood desks and chairs", declared Gilbert H. Bosse, president of the Wood Office Furniture Institute, at recent meeting in New York City. "If supplies of materials are adequate and if labor cooperates in productive effort, very likely many new models will make their appearance at the turn of the year.

"Prices of wood desks and chairs will not return to their pre-war levels. Nobody expects that, for materials, labor, shipping and other costs have advanced greatly since 1941. It is entirely possible that materials costs may increase even more during the coming year, thereby necessitating adjustments in selling price.

"Another factor that is pushing all commodity prices to higher levels is heavy federal taxation. For the decade prior to the war, total tax revenues of the federal government averaged less than five billion dollars annually. Under the impetus of heavy government spending to carry on the war, the total national income of the nation doubled. But the federal tax burdens increased nine-fold. Now federal taxes are running about forty-five billion dollars annually. Nearly one third of our total national income is taken in taxes by the federal government. It seems to me that this new burden of taxation alone will tend to keep food, clothing, furniture and other commodities at prices substantially higher than their pre-war levels. When wage owners and business owners pay out a substantial part of their income in the form of taxes, clearly pressures must develop which tend to increase wages and prices.

# ACUTE SHORTAGES HAMPER MUNICIPAL PROCUREMENT

"Never in the history of the District Purchasing Division has it been so difficult to procure needed materials, supplies and equipment for maintenance and operation requirements of District departments and agencies", declared Roland M. Brennan, Purchasing Officer, District of Columbia, Washington, in his annual report to the commissioners of the District.

"Fortunately, the picture is changing," he continued, "and, in some merchandise lines, production exceeds former peacetime figures. Now distribution is a hampering influence, and until more freight cars are available, the railroads are finding it difficult to move the tonnage of finished goods and materials which would otherwise be in transit." A supplier wrote to the department in response to a follow-up on delivery, to the effect: "This situation is not unique as we are at present suffering from a greater scarcity of material than at any time during the War."

The total valuation of purchase orders placed during the year amounted to approximately \$6,300,000, exceeding the previous year by approximately a million

(Continued on page 229)

# WANTED problems in

DRILLING REAMING TAPPING THREADING MILLING

E welcome your problems here
—if they have to do with reducing costs or increasing production
in drilling, reaming, tapping, threading or milling metal or plastics.

Specifying the right tools to meet these problems with economy and efficiency is as much a part of our business as is the manufacture of the tools themselves in our modern factory, where the most modern equipment and methods are in use.

Our 65 years of continuously successful experience in mak-

ing drills, reamers, taps, dies and milling cutters for America's mass production industries—Farm Implement, Railway, Electrical, Automotive, Home Appliance, and Aviation—is applied to your problem without cost or obligation.

Our Mill Supply Distributors, coast to coast, give this service either direct or through our factory representatives.

There is no substitute for experience. Send us your problems today.

THE STANDARD TOOL CO.

CLEVELAND

Warehouses: New York · Detroit · Chicago



# THE STANDARD TOOL CO.

CLEVELAND

Warehouses: New York . Detroit . Chicago

BR

SH

शा

BR

R

BR

BR

 $\Delta RD$ 

ARD

 $\mathsf{ARC}$ 

#### (Continued from page 226)

dollars. Surplus property purchases amounted to approximately \$116,000, and among other things the Purchasing Officer collaborated with the fire department and the corporation counsel's office in a transaction leading to the transfer of a practically new fireboat from the Navy Department to the District of Columbia—a transfer that was accomplished "without exchange of funds."

"The Purchasing Officer has appointed an Advisory Committee on Awards in his office", continued the report. "It is the duty of this committee to review the requisition and recommendation of the department head concerned and to examine carefully all bids in the running. The committee is under instructions to secure technical advice, if required, from other District or Federal agencies, and, if other than the low bid is recommended for acceptance, to proceed cautiously and call in the departmental representatives when there are further questions. The advice of the auditor's office is also obtained, and sometimes, the advice of the corporation counsel's office. The entire case, with the committee's recommendaiton as to the award, is then referred to the Purchasing (and Contracting) Officer for final action on the award of contract and placement of the purchase order."

During the year, discount savings totalled \$17,874. This figure does not include trade discounts on open market purchases under \$100 in valuation.

The Purchasing Department maintains a New Products File which is kept upto-date, and contains valuable reference information for all departments of warborn developments in the new products field as well as technological improvements in materials and manufacturing

And, reports Mr. Brennan: "We have continued to explore the field for new sources of supply and, during the year, added the names of many new qualified prospective bidders. Catalogs are being added 40 from day to day."

#### FREDERICK R. LACK MADE PRESIDENT OF A. S. A.

Frederick R. Lack, vice president of Western Electric Company has succeeded Henry B. Bryans, executive vice president of the Philadelphia Electric Co., as president of the American Standards Association. He formerly was vice president and is succeeded in that office by George H. Taber, Jr., executive vice president of the Sinclair Refining Company.

#### COMMERCIAL STANDARD INSECT WIRE SCREENING

The Division of Trade Standards, National Bureau of Standards, Washington, D. C., announces that commercial standard for Insect Wire Screening, identified as CS138-47 may be considered effective for new production from January 2, 1947.

(Please turn to page 230)





EVERY manufacturer, in striving to keep costs at a minimum, must deal with more or less difficult material handling problems. These are not always quickly solved, and usually require considerable thought by plant and conveyer engineers. Most experienced plant engineers agree that the use of Mathews methods and Mathews equipment means efficient material handling. That is why Mathews Engineers are usually called in on the problem requiring special attention. There are many types of Mathews Conveyers of both gravity and power designs, and from these types are selected the units which make up Mathews continuous flow conveyer systems. It is with such systems that prominent manufacturers are reducing worker fatigue and keeping materials moving through processing machinery, storage and shipping, with a minimum of product re-handling, costly confusion and delay.

It might be that a Mathews Engineer can show you what others in your industry have done to improve their material handling. We will welcome your inquiry and give it prompt and thorough service.

#### MATHEWS CONVEYER COMPANY

ELLWOOD CITY, PENNSYLVANIA SAN FRANCISCO, CAL. • PORT HOPE, ONT. ENGINEERING OFFICES IN PRINCIPAL CITIES



hygiene record of America's No. 1 hand soaps by Lightfoot. The secret of their speedier, more thorough cleansing is INTEGRATION . . . an exclusive process resulting in perfect uniformity of texture and mixture, in which each individual particle is a complete cleanser in itself.

# Gently! Safely!

... prevent red, raw, defatted skin — keep vital hands in top condition. The secret of Lightfoot's gentleness and SAFETY is quality ingredients, a low pH index and the "know-how" of more than three decades of quality scapmaking.





Write for samples, of assistance on specific cleansing problems . . . no obligation, of course!

LIGHTFOOT SCHULTZ

## INDUSTRIAL SOLVENTS IMPORTANT CAUSE OF OCCUPATIONAL DERMATITIS

Improper use of industrial solvents is the third largest cause of occupational dermatitis, or skin disease, accounting for 7.8% of all such cases. Since each year 1,000 of every 100,000 workers are afflicted with some form of dermatitis, 78 of every 100,000 workers therefore suffer from solvent dermatitis yearly. It may be estimated further that each year 1,560 cases of solvent dermatitis of sufficient severity to be compensable occur, with a financial loss, including wage loss and the cost of medical care, of about \$312,000.

Workers who fail to wear gloves when using solvent-laden rags to remove grease from bearings or when wiping up spills are engaging in careless practices which may lead to dermatitis. Another common example of carelessness is the use of solvent to wash paint and grease from the skin.

Solvents are used in industry to dissolve 'oils and fats. Similarly, if solvents are allowed to come in frequent or prolonged contact with the skin, they may dissolve the natural secretions of the skin glands and the fatty ingredients of skin tissue. This leads to drying, cracking, and fissuring of the skin, forming portals of entry for subsequent infection. Hypersensitive individuals may be affected even though contact is rare and of brief duration.

Treatment of dermatitis is the province of the industrial physician. Preventive measures, however, may well be put into effect by plant management. Hypersensitive workers should be assigned to work that does not involve the use of solvents. All workers should be instructed to avoid skin contact with these liquids as much as possible. Where feasible, a totally or partially enclosed process is the most effective means of preventing direct body contact.

#### Recommended Protective Measures

Though specific protective measures depend for their effectiveness on the type of solvent and conditions of use, those outlined below are rather generally applicable:

1. Personal Cleanliness: The worker's first line of defense is thorough, regular washing with a good cleanser—containing no harsh abrasives, alkalies or strong solvents—and warm water.

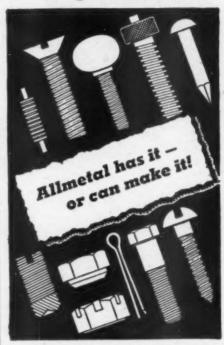
2. Protective Clothing: If prolonged or frequent direct contact with a solvent cannot be avoided, the worker should wear suitable protective clothing. This clothing, should always be properly cleaned, serviced, and disinfected.

3. Protective Ointments: So-called barrier creams and lotions, said to be impervious to particular chemicals, may also be used to advantage. They are especially desirable for areas not protected by special clothing.

Manufacturers of both protective clothing and ointments can advise on the types most suitable for the particular solvents in use.

(Please turn to page 232)

# What type of STAINLESS FASTENER do you need?



#### Prompt delivery from the largest stock in the nation!

Screws...nuts...washers...
pins...Allmetal carries the largest
stock in the country of stainless
steekiasteners and screw machine
parts. We also have facilities for
heading, tapping, drilling, reaming, slotting, turning, stamping,
broaching and centerless grinding
... and we work not only with
stainless and monel, but also with
duralumin, aluminum, brass,
bronze, or any other non-corrosive
metal. All parts produced to close
tolerances. Write for our catalog
today. Allmetal Screw Products
Co., Inc., 33 Greene St., New York,

#### Send for FREE CATALOG



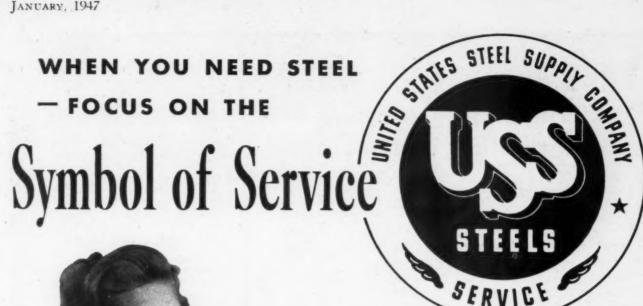
This new, 83-page catalog helps you select the correct size and type of non-corrosive fastening device for any particular job. Includes stock sizes, specials that can be made, engineering data, etc. Make request on company letterhead.

Write to Department PG

ALLMETAL SCREW PRODUCTS CO., INC.

33 Greene Street, New York 13

SPECIALISTS in STAINLESS FASTENERS





 ${
m E}^{\scriptscriptstyle
m VEN}$  under present-day difficulties, you can depend upon us to do our best to fill your needs as completely and quickly as possible. Through our nine conveniently located warehouses, every effort is made to have available adequate, well-balanced stocks. And our engineers are ready to help you with any problem involving the selection, application and fabrication of steel. For these reasons steel users recognize this label as the Symbol of Service.

Whatever kind of steel you want-Hot Rolled or Cold Finished Bars, Structural Shapes, Plates, Sheets, Alloy Steel, Stainless Steel, Tools, Machinery, etc.phone, wire or write our nearest warehouse. Your orders and inquiries will get courteous attention and prompt action.

#### UNITED STATES STEEL SUPPLY COMPANY

CHICAGO (90)

**BALTIMORE (3)** 

BOSTON

CLEVELAND (14) MILWAUKEE (1)

1319 Wabansia Ave., P. O. Box MM Bush & Wicomico Sts., P. O. Box 2036

P. O. Box 42

1394 East 39th St.

4027 West Scott St., P. O. Box 2045

176 Lincoln St., (Allston 34), STAdium 9400

**BRUnswick 2000** 

**HEnderson 5750** 

Mitchell 7500

Gilmor 3100

NEWARK (1), N. J. Foot of Bessemer St., P. O. Box 479

**Bigelow 3-5920** REctor 2-6560, **BErgen 3-1614** 

PITTSBURGH (12)

1281 Reedsdale Street, N. S.

**CEdar 7780** 

ST. LOUIS (3)

TWIN CITY

21st & Gratiot St., P. O. Box 27 MAin 5235

2545 University Ave., St. Paul (4) Minn.

NEstor 2821

UNITED STATES STEEL

#### PNEUMATIC TOOL SALE

#### 2860 NEW Chipping and Scaling Hammers

#### Singly or in Lots

Offering for quick disposal the following pneumatic percussion chipping and scaling hammers, each equipped with standard, open type, outside throttle handle.

These are current model tools from leading manufacturers ... all brand new and in perfect condition.

#### 1010 CHIPPING HAMMERS

2-inch stroke . . . overall length approximately 14 inches . . . weight 13 lbs. Designed for chipping and cleaning heavy cast iron, medium steel castings and high carbon billets . . . also for calking where a high speed hammer is desired.

98 Ingersoll-Rand, model No. 200

188 Chicago Pneumatic Tool Co., model No. 2 702 Master Pneumatic Tool Co., model No. 2

22 Keller Co., model No. 2

#### Look At These Prices!

Lots 1 to 25 tools \$38 each Lots 26 to 50 tools \$33 each Lots 51 or more tools \$25 each

Manufacturers' present list price for this equipment is approximately \$67 per tool

#### 1850 SCALING HAMMERS

Also known as "light weight chippers." 1-inch stroke . . . overall length 9 inches . . . weight about 5 lbs. Designed for chipping on light castings and sheet metal . . . for die and airplane work . . . for scaling and light calking. Use Navy Standard Scaler Chisels.

456 Ingersoll-Rand, model K-1

1250 Chicago Pneumatic Tool Co., model FC

140 "Thor" Independent Pneumatic Tool Co., model MM

3 Keller Co., "Super" model 1 Dallet Co., model A

#### Price Savings Up to 63%

Lots 26 to 50 tools \$28 each Lots 1 to 25 tools \$33 each Lots 51 or more tools \$20 each

Manufacturers' present list price for this equipment is approximately \$56 per tool

ALL PRICES NET, F. O. B. SAN FRANCISCO WAREHOUSE These tools are warehoused in San Francisco. To those interested in quantity lots, we shall be glad to ship samples for inspection.

215 Market Street, San Francisco 5, California

#### EFFECT OF COAL SHORTAGE ON THE AUTOMOBILE INDUSTRY

The answer to the question, what does a coal shortage mean to the automobile industry, may be found in a recent report released by the Ford Motor Company, Dearborn, Michigan. The report estimates that six tons of coal go into the making of a single Ford passenger car. This estimate includes coal used in the coke ovens, the powerhouse and the railroad in the huge Rouge plant, plus that used by the steel suppliers and in the transportation of raw materials.

#### STEEL STRAPPING EXHIBIT

Polaroid three dimension presentations feature Steel Strapping Exhibit presented to the Museum of Science & Industry, Chicago, by the Acme Steel Company of that city. Polarized filter windows present 15 three dimension steel strapping



Part of Steel Strapping Exhibit in Museum of Science and Industry, Chicago.

applications, below the sign "Production Protection for Transport" shown in the accompanying illustration. Center piece of the room is a cut away scale model box car which shows what happens inside a freight car when in-transit shocks are dissipated by the modern "Floating Load" method of bracing shipment. In addition there are displays of tools used to apply steel strapping, and also actual demonstrations of carbon strapping.

#### FORD COMPANY USES TONS OF PROTECTIVE SKIN CREAMS

The Ford Motor Company's industrial health laboratory has developed many protective skin creams for use by workers on jobs where possible irritations might arise. Last year 65,000 pounds of these creams were manufactured in the company's own pharmaceutical laboratory. The use of these creams and rigid hygienic investigation and methods have brought cases of skin inflammation to the lowest in the industry.

In its program to eliminate dermatitis, the Ford Health Laboratory recognized that goggles, rubber gloves, rubber boots and other equipment exchanged by employes were a likely source of irritation. This difficulty was brought under control when the laboratory put into operation a central disinfection station. At this station all equipment is washed, disinfected and stamped "sterilized" before it can be re-issued to another employee.

. (Please turn to page 234)

# Quick facts tell why 200 lb. UNION BONNET BRONZE GATE VALVES perform better...last longer...

because ...

the specially designed hard nickel alloy seats and wedges provide the ideal combination for corrosion and erosion-resistance that extends valve life, reduces maintenance costs, eliminates service interruptions.

NON-RISING STEM WITH NICKEL
ALLOY WEDGES AND RENEWABLE

the Union Bonnet Construction permits the easiest and quickest valve dismantling for inspection, cleaning, or replacement of parts. A heavy octagonal union nut and radial bonnet joint assure pressure tightness and perfect alignment of all parts.

because ...

stuffing boxes are large and deep...filled with moulded asbestos packing and fitted with a heavy, brass follower gland. Gland is held tightly against packing by wrought brass packing nuts. Valve can be repacked under pressure when wide open.

ON-RISING STEM WITH NICKEL
LICY WEDGES AND INTEGRAL
SEATS STEET IN TO 2"

because ...

wedges are held in proper alignment by machined guides in the wedges and heavy cast ribs in valve body. Bodies and Bonnets are special cast steam bronze with reinforcing ribs for extra safety under pressure and resistance to operating stresses.

omotic Pa.; Wi

ISING STEM WITH MICKEL AUTO FEDORS AND INTEGRAL SEAT SIZES WITTO

American industry flows through



# Gray Iron CASTINGS S.A.E. or A.S.T.M. Specifications Class 20 • Class 30 Class 40

Special Facilities
for Rollover — Copeand-drag production
to 150 pounds
Other castings up to

1000 pounds

FOUNDRIES CO.

2500 West 27th St. Cleveland 13, Ohio PHONE PROSpect 5040

## STANLEY EMPLOYEES CELEBRATE COMPLETION OF BIG CONSTRUCTION PROGRAM

When The Stanley Works in New Britain, Conn., recently announced the near completion of Building No. 150, a large building seven stories high containing about six acres of floor space and known as the Hardware Building, the employees of Stanley reversed the usual official celebration procedure and,

display. These included articles manufactured in New Britain as well as products of the recently acquired Philadelphia plant of North Brothers, makers of "Yankee" tools; and the Stanley Chemical Co., a subsidiary of The Stanley Works. The products were exhibited in stalls designed by the employees. Above the exhibits photographic murals portrayed the twenty plants of The Stanley Works, including those in Canada and Sheffield, Eng.



The new Hardware Building of Stanley Works, New Britain, Conn., and two of the exhibits, one of electric tools, the other of safety equipment. Exhibits were arranged by employees for the open house staged by them.

with the approval of the management, staged an observance of the occasion by taking over a floor of the new seven-story building and presenting a first-class open house.

The construction program which began two years ago, called for the erection of five buildings. One of these is the Hardware Building for the manu-



President R. E. Pritchard at the mike during the open house. Gentleman at left is Vice President R. W. Chamberlain

facture of Stanley hardware. Another building of six stories houses the electric tool division, with 136,000 square feet of floor space. A third building is for the manufacture of wire and rod products. Two smaller buildings include a garage for the Stanley motor fleet, and another for steel operations.

During the open house, nearly every item manufactured by Stanley was on

Approximately 20,000 people attended the open house. Although strictly an "employee job", management took an active part in the affair from President R. E. Pritchard right down the line. Executives and employees alike are of one mind in stating that the affair would prove invaluable in cementing friendly employee-company relations, President Pritchard stating: "We have found this affair to be pleasant, as well as practical, and we firmly believe that it will be conducive to good results."

#### FORD RELEASES FULL COLOR MOTION PICTURES

The Ford Motor Co., Dearborn, recently announced the release of the film "Men of Gloucester", first in a new "Ford America Series" of full-color motion pictures the purpose of which is to show America to itself and to the world. Two other films also scheduled for release are "Pueblo Indians," and South-ern Highlanders." "Men of Gloucester" is portrayal of life among the Massachusetts fishermen who are the descendants of immgirants from the coast lines of the world. Running a half-hour, the picture dramatizes the spirit of a community of mixed origins working to-gether in complete harmony under our form of government. The pictures will be available for showing through nontheatrical channels across the nation.

. (Please turn to page 236)





## Craftsmanship . . . then and now

Long ago that fabled and revered craftsman, the "instrument maker," sought precision in pressure gauges and the like with the skill of his own Stradivarian hands. But although his praise has been sung across the years, his precision was only remarkable in relation to his methods.

Today, greater precision — more lasting precision — is achieved on a production basis. This involves not only skill, but skill applied through highly specialized machines and highly organized methods.

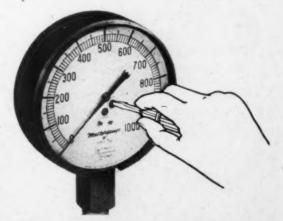
The steps illustrated here are typical of many ways in which precision is attained in Marsh Gauges and Dial Thermometers. No Stradivari touch could achieve the precision found in the gears, pinions, staffs and bearings of Marsh Gauges that is attained by the special machines, jigs, fixtures, and production line testing that is employed in making them today!

Examine a Marsh Gauge. Observe its performance. You will then know the meaning of precision that can only be called Marsh!

JAS. P. MARSH CORPORATION 2054 Southport Avenue, Chicago 14, Illinois Expert Dept.: 155 E. 44th St., New York 17, N. Y.



"Way back when," it was slow hand drilling and filing and fitting; today machines like this perform many operations on the sockets, simultaneously and with unerring accuracy. Result: Greater precision at no greater cost.



Only Marsh has the "Recallbrator"—quickest and best way to correct a pressure gauge that has been knocked out of adjustment.... finishing touch to a finer gauge.

MARSH GAUGES

#### by saving seconds...with more efficient hand tools

These are the days when seconds of time saved

help vitally to combat rising costs.

Are there hand operations in your plant? If so, these BERNARD hand tools may be worth their weight in gold to you.

5 5 5

Plier that is Wrench and Cutter as well



New, streamlined, long-nose, BERNARD Parallel Action PLIERS (#402-6"). Jaws close parallel like a vise. Cutters on outside of head for easy, quick use. Compound leverage action doubles gripping power.

Cutting **Nippers** that Reduce Hand **Fatigue** 



BERNARD Diagonal C Nippers ( lively spring action and compound leverage to keep hand fatigue at a minimum in repetitive operations.

Light **Metal Snips** that Cut **Curves** in Both **Directions** 



BERNARD Metal Snips (#888 have spring action and nd leverage. Blades are so mpound leverage. Blades welled as to permit easy of curves in either direction. ait easy cutting

\$ \$ \$

Order these or other BERNARD hand tools from your Mill Supply distributor. We are making every effort to serve customers with a minimum of delay.

For complete information on the BERNARD line of pliers, nippers, cutters, punches - as well as special hand tools for specialized operations send for catalogue. Please use coupon.

Wm. Schollhorn Co., New Haven 9, Conn. "Quality Tools Since 1870"

-----------

** **	. Schollhorn Co. Chapel St., New Haven 9, Conn.
	Please send me your free catalogue and tools for industrial use.
NA	ME
STR	EET
CIT	Y
STA	TE
Our	Mill Supply dealer is

#### WAA OFFERS SURPLUS HYDRAULIC AND RECOIL OIL

More than 8,000,000 gallons of government-owned, surplus hydraulic recoil oil, suitable for use in variable speed gears, shock absorbers, hydraulic jacks, press and valve controls, are being offered for sale on a fixed price basis, War Assets Administration announces.

Some types of the oil are suitable also for use as lubricating and low-grade motor oil. Manufactured under 18 specifications at a cost to the government of nearly \$426,000, the oil was used during the war in hydraulic artillery mechanisms.

The oil is in pint, quart and gallon cans and 55-gallon barrels. Fixed prices are f.o.b. location for all or any part of the inventory

The following WAA regional offices are holding inventories:

Location Gallons Location Gallons Kansas City 9,435 Birmingham 412,279 1.286 Boston Los Angeles 27,519 68,743 Chicago Minneapolis 117,152 New Orleans Cleveland 9.934 New York 75,812 Dallas 4,484 Denver 2,491 Philadelphia 9,360 Detroit 13,260 St. Louis 1 778 Salt Lake City 14,038 Helena 967 1,726 Houston San Francisco 36,868 1 1

#### CREDIT LETTERS ISSUED BY WAR ASSETS ADMINISTRATION

To make it easy for financially responsible firms to buy surplus property and to expedite sales throughout the country, War Assets Administration is issuing credit letters to firms that have established credit with the Administration.

The credit letters may be used instead of cash by firms buying on 30-day open accounts at any time or place and at any type of WAA surplus sale, including auction, site and spot sales. Hundreds of firms buying in several regions are finding the letters particularly convenient in that they enable their authorized agents to use the line of credit set up by their headquarters offices.

Buyers may apply to the credit department of any WAA regional office for a line of credit and credit letters. Regional offices may approve lines of credit up to \$50,000 and issue credit letters covering a specific amount. Applications for credit in excess of \$50,000 are checked by regional officials and recommendations sent to the Washington WAA office for

Credit letters expire 90 days from date of issuance or when the total amount of credit authorized by the letter has been used. WAA explained.

Each purchase made is deducted from the letter. For example, a buyer is issued letter for \$25,000 credit. He buys \$\$10,000 worth of surplus goods. His purchases are listed on the reverse side of the letter and that amount is deducted from the total credit. When the full amount of the credit has been used or an insufficient amount is left to permit anticipated purchases, the letter is returned to WAA and application made for

(Continued on page 238)





Can Supply Your Rubber Needs Sponge Rubber, Gaskets, Packing, Sheet Stock, Gloves, Extrusions, Moldings

NEOPRENE . HYCAR . BUNA 3. BUNA N. GUM RUBBER •

## A COMPLETE LINE OF INDUSTRIAL PETROLEUM PRODUCTS

A Pure Oil engineer will help solve your lubrication problems. Write nearest office, or Industrial Lubrication Dept., Chicago, Ill.

The Pure Oil Company, U.S.A.



with Pure



# Without Increasing Oboshoud!

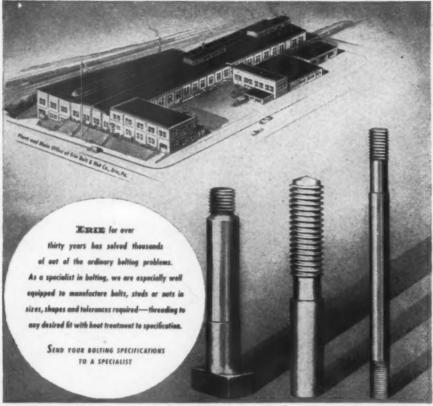
To buy the machinery and build the additions to your plant necessary for sheet metal forming, stamping and fabricating would cost—how much? Yet you can add this extra function without adding to overhead—by making Colgate your "sheet metal department."

Colgate has complete facilities — up-todate forming and stamping equipment, experienced labor, and plenty of working space for the precision manufacture of production parts and even complete units in quantity. Integrated to your assembly lines, Colgate's diversified facilities can save production time and reduce manufacturing costs.

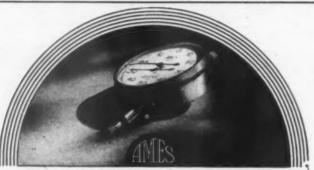
If you have a "tough" assembly to produce in volume, or are merely pressed for time or space, call in Colgate. Specialists in the light metals, and geared formass-production, Colgate will deliver the goods on time (or ahead of schedule) and, more than likely, at a lower cost than you could handle the job if you had a sheet metal department of your own.

Specialists in Fabricating and Stamping Aluminum, Magnesium, Stainless Steel and Other Light Metals.

COLGATE







#### FOR MILLIONS of READINGS ...

Insist on sensitivity, accuracy, and long life in Dial Indicators—the kind that AMES has been making for 50 years.

Many features of AMES design are exclusive. Only the best materials are used. Add expert craftsmanship and you have AMES Indicators that will outlast any you can buy—at any price. Send for illustrated Catalogue.

Representatives in principal cities B. C. AMES CO. Waltham 54, Mass. Manufacturers of Micrometer Dial Gauges and Micrometer Dial Indicators



(Continued from page 236)

another credit letter. The buyer must maintain his credit standing by paying for goods purchased within the usual 30-day

When a credit letter is issued, a credit identification card for each agent authorized to buy surplus goods for the firm is also supplied by the WAA official, Both the credit letter and the indentification cards, which include a brief description of the agent, are pre-numbered and photographic facsimiles of the signatures of WAA officials authorized to sign the letters are supplied officials conducting sales. These are among several safeguards provided to prevent unauthorized use of credit letters and identification cards.

#### LUMBER AND STEEL SHORTAGES SLOW CONTAINER PRODUCTION

Shortages of lumber and steel wire which have hampered production of wirebound boxes and crates since the end of the war will continue into 1947, according to reports by Civilian Production Administration officials to a meeting of the Wirebound Box Manufacturers As-

sociation in Chicago.

Mr. M. W. Niewenhous, director of the CPA Forest Products Division, told the box manufacturers that demands for materials for the veterans housing program and other new construction will continue to make heavy inroads on the nation's lumber supply. He added, however, that government officials are cognizant of the needs of the container industry and assured the box manufacturers that they will receive their share of existing supplies.

In regard to wire supplies, Charles Lewis, chief of the CPA Containers Branch, told the members of the Association that the outlook never has been

so dark."

Mr Lewis pointed out that the demand for wire has doubled over the prewar levels and that the steel industry had been seriously hampered by strikes and other labor difficulties which held up production. The huge nail program for veterans housing was another factor blamed by Mr. Lewis for the present lack of wire for the container industry. He added that it would be impossible to predict when abundant supplies of wire will again be available to box manufacturers.

The otherwise bleak picture of the raw materials supplies situation was somewhat brightened for the box manufacturers by H. A. Wolsdorf of the Package Research Laboratory, Rockaway, N. J., who reported on the progress of experiments being conducted under the sponsorship of the Wirebound Box Manufacturers Association to develop substitute materials for boxes.

Mr. Wolsdorf told the Association members that early results of these experiments indicate a strong possibility that new materials can be developed which can be used as substitute for or a supplement to the veneer which now

(Continued on page 240)



of industrial finishing, start with it leads to better products, better production, big in operating co sales. Often it uncovers substantial savings costs.

Among nearly 600 chemicals and plastics produced by Monsanto, you will find many that contribute much to painting, lacquering, varnishing-in fact, any type of surface coating . . . These Monsanto products add important qualities to finishes-improved flow, leveling, luster, flatting, quickdrying, hardness, flexibility, transparency, opacity, adhesion, color retention, resistance to moisture, air, gas, stains and acids. If you're concerned with industrial finishes or coatings, a discussion with Monsanto may suggest improvements . . . Too, you may be interested in a condensed folder high lighting specific advantages of Monsanto products for application to this broad field of industry operations. Ask for a copy.

MONSANTO CHEMICAL COMPANY, St. Louis 4 District Offices: Akron, Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Dayton, Detroit, Los Angeles, Montreal, New York, San Francisco, Seattle, Springfield, Toronto.



#### **Amyl Acetate** Antioxidants Aroclors\* (Plasticizers and resins) Benthal\* (Benzoic Acid, Technical) Butyl Acetate Cellulose Nitrate Solutions Diacetone Alcohol Dibutyl Phthalate Ethyl Acetate Fungicides Insecticides

Lacquers (Special purpose and graining) Lampblack Maleic Anhydride Mersol\* (Solvent Alcohol) Paint Anti-Skinning Agents Phenol Phthalic Anhydride **Plasticizers** Resimene 875\* Resins

Monsanto Products for Better Finishes Santicizers\* (Phthalyl Glycollates and other Plasticizers) Santocel\* (Flatting Agent) Santolites\* (Synthetic Santolites\* (Synthetic coating resins)
Santomask\*
(Deodorant)
Thinners
Tricresyl Phosphate
Triphenyl Phosphate
Triphenyl Phosphite
Vanillin Monsanto
Polyvinyl Butyral
\*Reg. U. S. Pat. Off.



# AN Invitation to GEAR BUYERS

Many of the country's top-ranking manufacturers look upon our gear engineering facilities as part of their own plant! And rightly sol For over 25 years our job has been the production of precision gears to customers' specifications. Once your specifications are in our files, reorders are filled automatically. As specialists in this field, we have the equipment and experience to do our job well. Let us quote on YOUR requirements now!

# **PERKINS** Precision, Custom-Cut

PERKINS MAKES: Helical Gears, Bevel Gears, Ratchets, Worm Gears, Spiral Gears, Spur Gears, Ground Thread Worms

PERKINS MACHINE & GEAR COMPANY - Springfield 2, Mass.

(Continued from page 238)

goes into wirebound boxes and crates.

All such materials, he added, will be subjected to rigorous tests to determine their strength and durability under actual shipping conditions and careful analysis of manufacturing costs will be made to ascertain the practicality of the new materials from an economic standpoint.

#### "HOW, WHY & WHERE OF LOCK WASHERS"

"How, Why and Where of Lock Washers" is title of technical booklet on lock washers just released by the George K. Garrett Company, 1421 Chestnut Street, Philadelphia, Pa. It is termed one of the most complete booklets on this subject ever issued. "What are the primary and secondary zones of power in a fastening device? When should a spring lock washer be used?, and When should a lock nut be used with a spring lock washer?" are among the questions answered in the booklet, which, it is stated, "calls a spade a spade when discussing fastening devices."

The booklet contains full specifications on all sizes of spring lock washers.

#### J. P. MARSH COMPANY TO BUILD NEW PLANT

Announcement to the effect that C.P.A. approval has been given to the Jas. P. Marsh Corp., makers of industrial instruments and heating specialties, to start construction of new factory and office building, is made by President Barrett Scudder. The new plant will be built on five-acre tract in Skokie, Ill., Chicago suburb. It will be a one-story unit covering an area of approxiately 100,000 square feet:

#### METAL WORKING MACHINES OFFERED ON FIXED PRICE BASIS

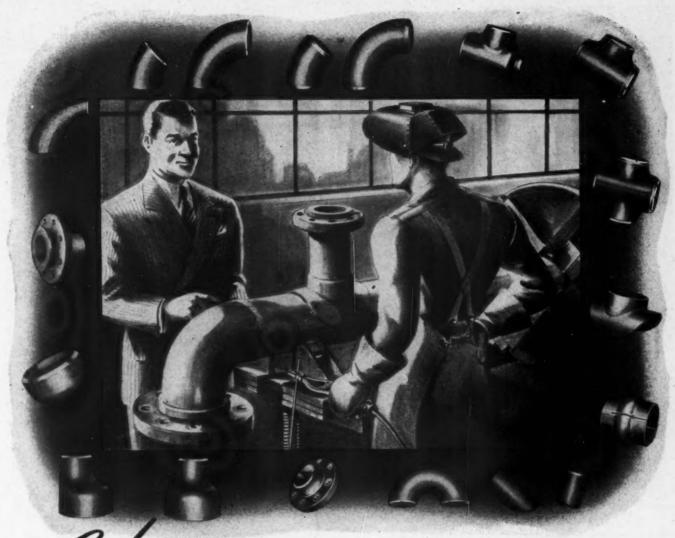
War Assets Administration announces that the entire avaliable inventory of surplus, unused portable power-driven metal working machines and tools will be offered for sale at once on a fixed price basis.

WAA said the machines and tools will be made accessible simultaneously to priority holders and the general public on a first-come-first-served arrangement, with fixed prices on the surpluses effective immediately.

The inventory, consisting of pneumatic and electric tools of standard voltage and cycle, represents about \$16,000,000 in new cost value.

The tools will be sold at established prices "as is," WAA explained, and added that attachments and accessories will be sold with the basic tool and included in the original established price. Used pneumatic and electric tools and unused electric tools of non-standard voltage and cycle will be offered under a

(Continued on page 242)



# What he thinks of MIDWEST WELDING FITTINGS

You will find that he gives them hearty approval. Piping welders generally have a high appreciation of the exceptional dimensional accuracy and uniformity of Midwest Welding Fittings . . . their job is easier and they can turn out better work faster.

Midwest Welding Fittings have extraordinary dimensional accuracy because particular precautions are taken in their manufacture. Midwest Welding Elbows, for example, are made slightly oversized, then reheated to forging temperature and given a final ac-

curate sizing in compression. This provides accurate dimensions, true circular section, and uniform wall thickness. Comparative corrosion tests as well as tensile and ductility tests have proved the beneficial effect of forging the metal in compression.

Welders also appreciate the wide variety of Midwest Welding Fittings... including "Long Tangent" elbows and reducing elbows. There is a fitting for practically every condition he encounters. Ask the local distributor or our nearest office for Bulletin WF-41,



PIPING & SUPPLY COMPANY, INC.

Main Office & 1450 South Second St., St. Louis 4, Mo.

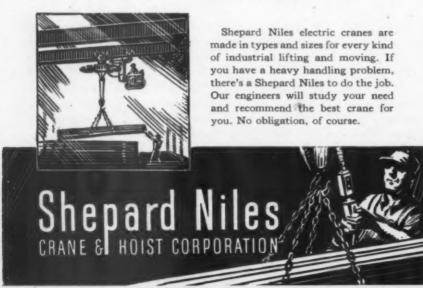
1-1-4 Offices, New York 7-30 Church St., o Chicago 3-645 Marquette Elde, o Los Angelés 33-520 Antigron St. o Neutro 2-7 117 thail Sidg. o Tulso 3-153 Mayo Bidg. o Atlanti 3-Red Red, Mids. o South Beston 27-426 First St. o Displaying in Many Cale



With so many ways to manufacture, process and fabricate, businesses may be different insofar as shop practice is concerned. But regardless of whatever competitive advantages you enjoy, your material handling problem is common to all industry. Heavy loads must be picked up, moved and deposited with speed, safety and economy.

Shepard Niles electric hoists have, for many years, been handling loads of from  $\frac{1}{8}$  to 20 tons smoothly, easily and efficiently in every type of industry.

America's oldest builder of electric hoists and cranes offers you a selection from over 5,000 styles and sizes to enable you to get the hoist best suited for your handling job. Without obligation, trained, experienced Shepard Niles engineers will study your handling operations and recommend a hoist to do the job as you want it done.



462 SCHUYLER AVENUE . MONTOUR FALLS, N.Y.

(Continued from page 240) competitive bid method of sale.

Insofar as inventories permit, the tools will be offered in lots of size compatible with commercial sales and awards will be made to the highest acceptable bidder. WAA will reserve the right to reject any or all bids.

#### REMOVE RESTRICTIONS ON ANTIMONY IMPORTS

Removal of all restrictions on imports of antimony, effective immediately, was announced by the Civilian Production Administration.

At the same time, CPA said that it was directing the Reconstruction Finance Corporation to discontinue public purchases of antimony from foreign sources except for commitments and arrangements already undertaken.

Import restrictions on antimony were removed by eliminating the metal from List A of Imports Control Order M-63. This, CPA pointed out, leaves only agave fibers, molasses (inedible) and tin now subject to this order.

Antimony, whose chief civilian use is in the manufacture of lead items, was in great demand during the war for flame and mildew proofing of military equipment such as tents, and also for fire-proof paint.

Antimony was originally placed under import control in December, 1941, and was removed in November, 1944. The difference between the world price of the ores and the domestic price ceilings required that it be returned to M-63 controls in October of this year.

#### TIN CONTROLS WILL REMAIN IN FORCE

Public purchases of tin, plus other controls on the metal, will continue throughout the first quarter of 1947 because these controls appear to offer the best plan to distribute tin equitably in the face of continued scarcity, the Civilian Production Administration announces.

This clarifying statement was issued, Erwin Vogelsang, Chief of OPA's Tin-Lead-Zinc Branch said, because the recent elimination of import purchase controls on lead and copper have caused rumors of similiar decontrol of tin.

The controls which will continue in effect through March 31, 1947, are:

(1) Import purchase of tin by the government exclusively.

(2) The import restrictions on tin as contained in order M-63.

(3) The domestic use and quota controls on tin as administered under the tin order (M-43).

Production of tin in the Far East (the source of more than 90 per cent of peace-time supply) is coming back very slowly, Mr. Vogelsang said. He pointed out that much economic and social rehabilitation must be accomplished in many previously enemy-occupied areas before production will again approach pre-war levels. From present information, CPA estimates that production will not meet unrestricted demands for tin until 1049.

Your quantity-run
Special Threaded Parts
are made stronger, faster
and more economically by

EXTRUSION

as applied by the
Kaufman Double Extrusion Process

Many of your specially designed headed and threaded parts can be produced by the upset method, or cold forging, with all-around advantages. Our application of this method, which involves single or double extrusion according to the design, assures you a stronger part, produced faster and at an appreciable saving when ordered in production quantities. Send your drawings and specifications. We'll tell you frankly whether we can help you with Kaufman Process manufacturing.



CLEVELAND
Top Quality
FASTENERS

The Cleveland Cap Screw Company

2917 EAST 79TH STREET . CLEVELAND 4, OHIO

Warehouses: Chicago and Philadelphia
Ask your Jobber for Cleveland Fasteners

MADE BY THE ORIGINATORS OF THE KAUFMAN PROCESS FOR GREATER STRENGTH AND ACCURACY



#### A Sample Is Ample!

The proof of the pudding is in the tasting. So sample a sheet of paper from any one of Eastern's three brands... Atlantic, Volume, and Manifest...and see how it suits your needs for paper that is economical, dependable, printable, and consistently uniform. Yes, with only a sample you'll want to order more...for your letterheads, envelopes, ledgers, and duplicating machines. You'll want to keep on buying Eastern's papers for the satisfaction...constant satisfaction...they give you always.
So for a good sample send for our portfolio of "Eastern's Fine Papers for
Business." Then specify Eastern's Papers
the next time you buy.

MADE BY EASTERN CORPORATION BANGOR, MAINE



Purchase Order Change Notice

P. R. MALLORY & CO., INC.

| Date |

C. MERCER, Purchasing Agent of P. R. Mallory & Co., Inc., Indianapolis, Ind., advises that the accompanying nine forms are the principal ones used in his department. The lot includes the following:

Purchase Order;
Purchase Record Card;
Purchase Requisition;
Purchase Order Change Notice;
Vendor's Delivery Promise;
Report of Sample Inspection;
Receiving Inspection Reject;
Receiving Report; and,

Debit Memorandum.

Of unusual interest is the Purchase Record Card. Mr. Mercer states that this card has been in use since 1936, and that it is one of which he is particularly proud because of its thoroughness and efficiency as a comprehensive record of a material or component.

(Continued on page 246)

#### ABOVE

Purchase Order Change Notice. This is an inter-office form used to notify recipients of copies of purchase order of changes made therein.

#### RIGHT

Purchase requisition used by P. R. Mallory & Company.

	hase Red				Nº	115758	
	PRM		DATE				
VENDOR	Size 82"	x 94"		SHIP VIA			
TREET				F. O. B.		17.17	
CITY			1	TERMS			
QUANTITY	UNIT	OB	SCRIPTION AND PART NO			PRICE	
Thus a	PACE FOR PURCHAS	ING DEFT. ONLY	$\overline{}$				
THIS B	PACE FOR PURCHAS	INS DEPT. CHLY	DATE REQUIRED				
THIS B	PACE FOR PURCHAS	ING DEPT. CHLY	DELIVER TO DEP	ARTMENT			
THIS B	PACE POR PURCHAS	INS DEFT. CHLY	CHARGE TO ACC	ARTMENT			
THIS B	PACE FOR PURCHAS	ING DEPT. CHLY	CHARGE TO ACC	CUNT NO.			
THIS 9	PACE FOR PURCHAS	INS DEFT, ONLY	CHARGE TO ACC	OUNT NO.			
THIS 8	PACE FOR PURCHAS	ING DEPT. CHLY	DELIVER TO DEF	OUNT NO.			
THIS 9	PACE FOR PURCHAS	ING DEPT. CHLY	DELIVER TO DEF	OUNT NO.  OUNT NO.  INTE HEXT 3 NOS.  ARTMENT HEAD  DATE			

MATE	RIAL			( -3					PRODUCT	PART No.	PART No.			
							, )-				SUPERSEDING			
							* 1				SUPERSEDED	BY		
PURCE	LASE SPEC'S	ANTICIPA	TED DES	IGN CH	LANGES					ORDER	S PLACED			
DATE	WOMEN	DATE CHECKED	YES	MO	AUTHORITY	DATE	ORDER No.	REQ. No.	s-goad to	YER	DOB	QUANTITY	PRICE	Price Champs
						- 0				11				
								4.5	-					
					-		-			*			-	
													Eng	
SAMP	LE DATA												TA I	11.4
	1													1
	1						1							
										1				
SPECIFICATION CHANGES														
DATE	SUB No.	MEMO No.	CHANG	ES DIVO	LVED									

QUOTATIONS							USAGE	CONTRACT DATA	
ATE VENDOR'S No. AND NAME	QUAN. STEPS	PRICE	100L COST	TERMS	f. o. s.	DATE	QUAN. USED	PERIOD	
									REMARES
							-		
				-		4			



#### ABOVE

Front and reverse of Purchase Record Card. It is given to buyer with new requisition, giving him complete history of particular part being purchased.

#### LEFT

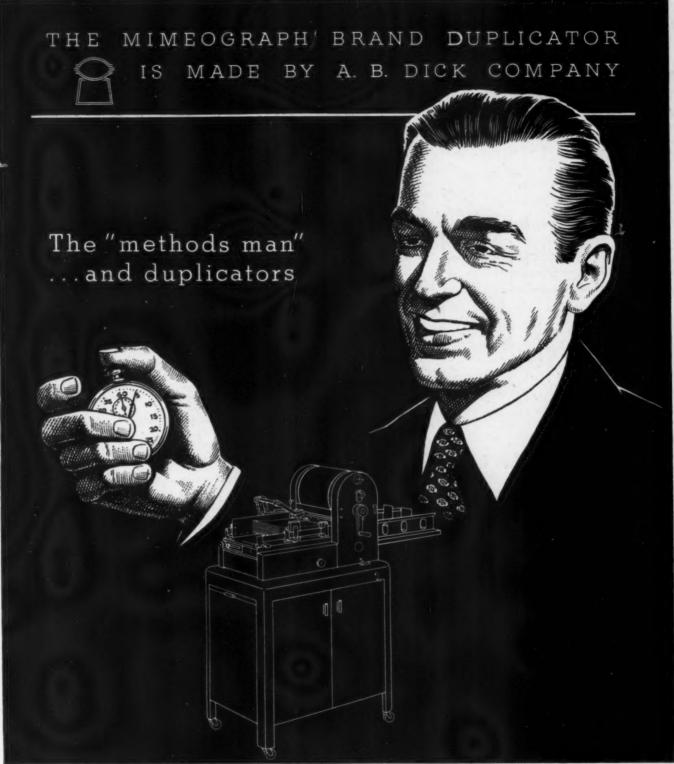
Debit Memorandum. It is self explanatory.

#### (Continued from page 245)

The card is removed from file and presented with repeat requisition for the corresponding product, to the buyer, furnishing him with a complete history of the part ordered.

A review of the sectional headings indicates that the Record is quite detailed from the standpoint of facts that a buyer should be conversant with, and the facts of previous procurement, and usage. His attention is also directed to "Anticipated Design Changes", "Specification Chang-

(Continued on page 248)



COPYRIGHT 1946, A. B. DICK COMPANY

The methods man and his stop watch have an important job in industry.

That job is saving other people's money—his company's money. It's done with time-and-motion study, analysis of methods, systems, factory routines.

That's why the methods man is such a strong supporter of the Mimeograph brand duplicator. It fits right in with his thinking—his efficient way of doing things and getting things done.

He knows how this versatile machine can turn out streamlined paper-work systems for everything from complete production control to "tote box" tags. He likes the way the Mimeograph

He likes the way the Mimeograph brand duplicator and Mimeograph brand supplies provide a method of reducing as many as twelve paper-work functions to a single writing.

And his recommendation is approved all the way along the line—from the boys who like to run it to the treasurer who likes the low cost per duplicated copy.

A staff of experts, specializing in factory paper-work problems, is available to consult with your own methods men about the work the Mimeograph brand duplicator can do in your plant or office. Call the Mimeograph distributor in your community, or write direct to A. B. DICK COMPANY, 720 West Jackson Boulevard, Chicago 6.

MIMEOGRAPH is the trade-mark of A. B. Dick Company, Chicago. registered in the U. S. Patent Office - A. B. DICK COMPANY, Chicago - The Mimeograph Company, Ltd., Toronto



Decisions

by

MANAGEMENT

made

Easy...
Fast...
Accurate

with

## **VISI**record

"THE WORLD'S FASTEST VISIBLE RECORD-KEEPING SYSTEM"

VISIBLE INDEX CORP.
535 FIFTH AVE., NEW YORK 17, N. Y.
Distributors in Principal Cities

(Forms Forum-Continued from page 246)

Unit Name	Vendor		1	Date Reed.	Sample			
Part Name	P. O. No.	R.R.	No. 1	Date Insp.	Sample Accepted By: Passed Conditionally			
Sample No.	Measured	No.	1	Date Sept	By: Sample R	eiected		_
	By:	Inspe ROM SPECIFICATIONS		Aurch.	Request !	ejected New Sample	•	-
FREM	VARIATIONS II	SAMPLE MEASURES	SPECIFICATION			Balant	Aces	CASTO
1100		SAMPLE MEASURES	LIMITS		MATION	Reject By	Aspt by	Vond
1								
2		1						
3								
	_							
3	-	-	_	-	_	-	-	
						-		-
7 FINISM						-		-
10						-	-	-
19						-	-	+
10			-			-	-	+
21 OBNEZAL COMMENTS						_	-	1
12								-
23							+-	-
23								+
25								-
16								1
27				-			1	1
28 ENGINEERING DEPT. RECOMMENDS:								
19	,							T
30							T	T
51								T
92							-	+

This form is used to give Purchasing and other departments thorough report on samples inspected.

RECEIVING INSPECT	TION REJECT		- No	12243
7194-191999		DATE		
CODE OR PART No.		DESCRIPTION	104	
	Size 7	" x 41"		
	PURCHASED FROM		PURCHASE GROEN No.	RECEIVING REPORT NO
OTAL QUANTITY RECEIVED	QUANTITY REJECTED	INSPECTOR	PRO	DUCT CLASS
	REASON F	OR REJECTION		

es", and definite information as to whether the part is current, or has been superseded by another number. The actual size of the form is 934" x 1134".

Another interesting form is the "Vendor's Delivery Promise" which is used to notify requisitioning departments of promised delivery dates of parts ordered. This form is half-letter size—8½" x 5¼" deep.

There are three reports which are the first of their type to appear in the Forum. One of these is "Report of Sample Inspection", a letter-size form which is used to furnish Purchasing Department

and others concerned, with a thorough report on sample parts submitted for inspection. The lower part of this form it will be noted, contains section for recommendations by the Engineering Department concerning the sample covered by the report.

The second of these reports is an Inter-Office "Purchase Order Change Notice", which also is printed on letter-size stock. This is used to notify recipients of copies of a particular purchase order, of changes that may have been made therein.

(Continued on page 250)

"how do you know it's a very important job?" "because they said 'use International offset"



Easy to know what paper gives top-notch press performance—making it a first choice for important jobs. Just seeing INTERNATIONAL OFFSET in action makes that clear.

You'll like the way it lies flat. It is strong, surface-sized and fuzz-free. Equally adaptable to letter-press or offset, it takes long runs of single or multiple color with the greatest of ease.

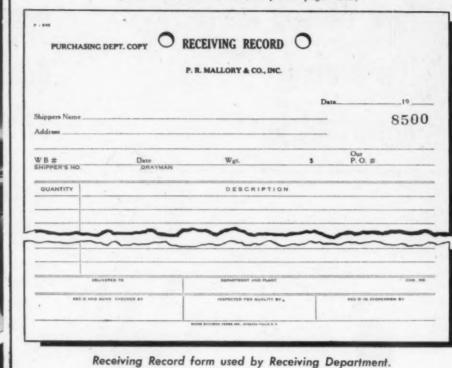
Keep INTERNATIONAL OFFSET in mind for those booklets, brochures, broadsides where handsome appearance is a special asset.

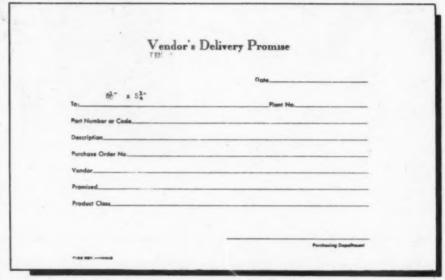
Current shortages of raw materials, coupled

with the great popularity which this paper enjoys, mean quantities insufficient to meet everyone's needs. Our facilities as the world's largest maker of papers are constantly at work to increase available supplies. International Paper Company, 220 East 42nd St., New York 17, N. Y.



(Forms Forum-Continued from page 248)





This form is used to notify requisitioning department of promised delivery dates of parts ordered.

_		pecce	PROCEIVED .				ecope	RECEIVED		OR F	METURNED
DATE	NO.	FFERE	QUANTITY	ON ORDER	BATE	R. R. NO.	PEM	GUANTITY	ON ORDER	DATE	BALANCE ON ORDER
_											
-					-	-					
-									-		
								,			

This record form appears on the back of the Purchasing, Receiving and Accounting Department copies of purchase order.

(Please turn to page 254)



YOU read your mail before you sign it — because it's-important to send perfect letters. Protect your written thoughts with the best paper. You can "read" the high quality in Fox River letterhead paper as quickly as you scan the briefest letter. Just "light-up" the letterhead to see our watermark as explained below . . . the higher the cotton fibre content the better the paper (only 1/5¢ per letter more for 100% than 25% — an infinitesimal sum in correspondence costs). Ask your printer. Fox RIVER PAPER CORPORATION, 403-AS. Appleton St., Appleton, Wis.

OUR WATERMARK
is your quality guarantee

Look through the paper...
see all three!

1 COTTON FIBRE
2 25-50-75 or 100% COTTON FIBRE CONTENT
3 MADE "by FOX RIVER"

NOW... UP TO 3000 RECORDS WITH NATIONAL THREE-TRAY CAPACITY VERTICAL VISIBLE

The NATIONAL VERTICAL VISIBLE provides three visible margins for every record card . . .

- 1. HORIZONTAL for Visible Signalling
- 2. DIAGONAL
  - for Visible Indexing
- 3. VERTICAL
- for Visible Data

Thus it goes one step further than other types of visible control . . . visualizing the indexing and signal. information plus actual postings to the record cards.

Ideal for large and small businesses of all kinds . . . for all types of records . . . stock, purchase, costs, equipment inventory, payroll, personnel, analyses, sales, collections, installment ledger, financial, government, utilities, school, professional, personal.

Units are complete, ready to use with Tray, Guides and Forms. Stock forms on "Eye-Ease" Ledger are available for many types of records.

ASK YOUR STATIONER

Regular No. 1810 National Vertical Visible Trays are used in this handy three-tray unit, affording triple capacity up to 3000 records within operator's reach.

Three openings in top of stand make it easy to fasten in stock trays . . . just as easy to remove. The stand is all-steel construction in modern gray crinkle finish. Adjustable height is 18 to 30", Steel shelf at bottom. Four 2" swivel casters.

Stand Stock No.	Width	Overall Depth	Height	Capacity
9033	181/2	211/2	Adj. 18 to 30"	Three No.1810 Trays

Stands also available for one or two No. 1810 Tray units

NATIONAL BLANK COMPANY ВООК

> MASSACHUSETTS HOLYOKE,

NEW YORK

#### RECORD KEEPING BINDERS & FORMS

Post Binders
Visible Binders
Transfer Binders
Ring Books
Prong Binders
Catalog Covers

Pay Roll Records Accounting Forms

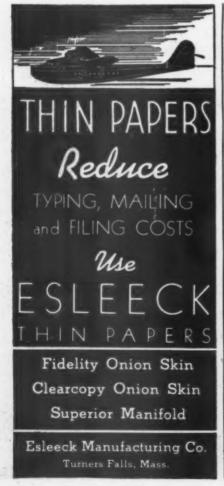


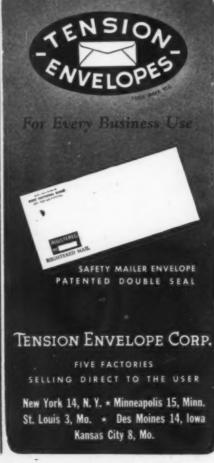
#### WE CAN NOW MAKE IMMEDIATE DELIVERY

For the first time since the War we have succeeded in building up a sizable inventory. The Cesco line includes a comprehensive range—Forms and Binders for most every purpose. Special Ruling and Printing orders executed promptly. Send for Catalog today.

#### THE C. E. SHEPPARD COMPANY

4405 Twenty-First Street, Long Island City 1, New York





#### "CORONET" EXECUTIVE DESK

Answering the question of what has happened to some of the wartime dreams of American industrial engineers, the Gunn Furniture Company, Grand Rapids, Mich., presents the new "Coronet" executive desk. It features modern appearance, clean lines, rounded corners, and is constructed from selected riff-sawed white oak with a finish that is said to reduce glare and resist cigarette burns and blemishes. Tambour closings conceal a radio, teletalk, telephone and dictating machine.

On the top of the desk, toward the rear, is a "set-back" super-structure con-



Roll doors opened reveal desk's utilities & fixtures

taining concealed fluorescent lights, with directional louvres providing shielded illumination for the desk top, an electric clock, a six-tube superheterodyne radio, a 12-station master unit for inter-office communication, a recessed desk set equipped with twin lifetime pens, and an electric razor, with door mirror.

The upper portion of the left pedestal is provided with a pull-out telephone slide, with automatic index for quick number reference. Corresponding space at right contains an electric dictation machine. Between the two are a pushin cigarette lighter and a supplementary electrical outlet. Remaining pedestal space is occupied by the usual drawers.

The rear face appears to consist of four conventional panels. Behind one is a custom-built electric refrigerator. Two central panels conceal a pull-out mixing bar and bar rack holding a dozen cut crystal tumblers and a pair of decanters. Fourth panel conceals a fire-tested personal safe. The center of the superstructure houses an electric clock, identical to the one facing the occupant on the other side.

# # # # NATIONAL BLANK BOOK CO. EXPANDS CHICAGO BRANCH

The Chicago Branch of the National Blank Book Company of Holyoke, Mass., has acquired the entire building in which it is located at 209 South Jefferson Street, Chicago, Ill., increasing its occupancy area from 34,000 square feet to 65,000 square feet. The additional space is being converted into a modern production plant for the manufacture of loose leaf, post binders, ring books, fillers, etc. W. Brewster Towne, son of President J. W. Towne, is in general charge of Western Division operations.

### ALUMINUM CHAIR WITH FORM-FITTING BACK



Illustration shows satin-finish aluminum chair with vinylite plastic upholstered seat and back, announced by the Doehler Metal Furniture Co., 192 Lexington Avenue, New York, N. Y. The molded plywood back is shaped for comfort and correct posture. The vinylite upholstering is available in red, blue and yellow, Spanish grain finish. It is water and heat resistant, will not stain or scuff, and is easily cleaned with a damp cloth.

### FLUORESCENT LAMP FOR TYPEWRITER OPERATORS



Fluorescent lamp fixture for front vision, line by-line 25" model Copyholder, is announced by the Copy-Right Manufacturing Corp., 53 Park Place, New York, N. Y. The fixture takes a 15 Watt T-8 fluorescent tube which diffuses soft illumination over the copy-work, typewriter and both sides of the desk. Fixtures are also available for the 12", 16" and 20" copyholders.

### GUY S. N. GOSTLING NAMED EVERSHARP CANADIAN MANAGER

Guy S. N. Gostling has been named managing director of Eversharp, Inc. for Canada, in complete charge of all Eversharp operations in that country, including manufacturing and sales, with headquarters in Toronto. Mr. Gostling formerly was manager of market development for the Moore Corporation.

## If this copy of PURCHASING

## Had Passed Its Youth by the Time It Reached You-Try This Sure Cure

Although printing facilities still groan over the heavy burden placed on them, we manage to get PURCHASING in the hands of its readers on time. Of course, we mean in the hands of the man whose name appears on the address stencil.

That is as far we can go. We wish we could go further, so that those near the middle or bottom of a routed list would receive the valuable information in the purchasing executive's Bible before age had an opportunity to detract even slightly from the wealth of useful fact our editors and our advertisers provide.

If you are a victim of delayed routing, there is a quick and positive cure: simply see to it that you are the man whose name appears on the address stencil. The cost is slight — 25¢ a copy — \$3 for a full year's service. And then you will not only get your copy while the information is of maximum value to you, but you can also clip the issues to your heart's content and preserve the articles and advertisements you wish to preserve in your permanent, personal files.

Just fill in, clip, and mail the coupon:

### PURCHASING, 205 E. 42nd St., New York 17

To avoid delay, I want PURCHASING to come to me personally. Send it to me each month for a year — 25¢ a copy — \$3 for the whole year.

Mr		0		٠	•								T	iŧ	le	e		 			•	•	•			4
Company									•																	
Address																			. ,			0				

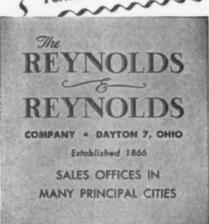
## COMMERCIAL FORMS AND SYSTEMS



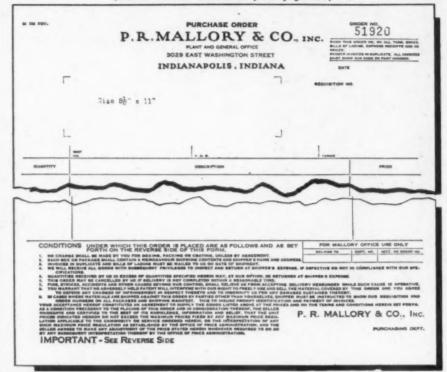
An ally of modern management, Reynolds and Reynolds is one of the world's largest suppliers of printed or lithographed control and operational forms.

- CARBON INTERLEAVED SYSTEMS
- . BUSINESS MACHINE FORMS
- PAYROLL CHECKS and SYSTEMS

Effective Advertising
Literature, Distinctive
Stationery and Business
Forms of every kind



(Forms Forum-Continued from page 250)



The third is a Purchasing Department "Debit Memorandum", letter-size. It is self-explanatory as to use.

The company's Purchase Order is a seven-copy fan-fold form. In addition to vendor and Purchasing Department copies, the latter being on double weight paper stock, copies are sent to Production, Cost, Accounting, and Receiving Departments. The back of copies for the Purchasing, Receiving and Accounting Departments carries form (reproduced)

for recording receiving details.

The Purchase Requisition is 8½" wide x 9½" long. Among other details, it shows date material is required, account charge, and estimate of requirements.

Two additional "different" forms, are the Receiving Record on letter size sheet, and the Receiving Inspection Reject report. The latter is 7½" wide x 4½" deep and among other things shows quantity received, quantity rejected and reason for the rejection.

### Standardization In The Office

By E. H. CONARROE
Chairman of the Board
National Office Management
Association

The major application of the principles of standardization in the past has been in the field of industrial products and processes, but there is just as much need for standardization in the office and just as much to be gained through its application to the problems of office equipment and operations as to those of production. In the final analysis, good business management involves control, and control in the office, as elsewhere, is facilitated where standards are available to measure the performance of office equipment or personnel. A major function of the office is record keeping for control purposes. In view of the fact that those records are used in all phases of the business undertaking, the standards used in improving office efficiency and economizing on office operations will necessarily be interest and advantage to all con-

cerned with any phase of business or industrial management.

Standardization in the office has an unusually wide application, as shown in the following analysis. In all of these fields difficulties have arisen through lack of standardization.

### Equipment

This is a big field in itself, encompassing such items as desks, chairs, filing cabinets, tables, vaults, bookcases. Here questions of size, style, finish, and construction are factors that lend themselves to standardization. Variations in these characteristics have created problems in office layout and arrangement, as well as in the maintenance and use of office equipment. These problems have been emphasized during the war period when

materials have been relatively unavail-

Recently, for example, a company was faced with the problem of setting up a temporary office. Those in charge had to scour around for chairs, desks, and other equipment wherever obtainable. When assembled, the lack of standardization in size and design in the equipment was quite conspicuous. This presented a serious problem of office layout, and added considerably to operating difficulties.

Color is another problem that frequently causes trouble. It has been almost impossible to bring about agreement among the suppliers as to what is meant by "olive green," for example. In some cases, this lack of agreement makes it necessary to completely refinish new filing equipment if a company wants to avoid an office full of different shades of green. The same problem of nonstandard colors has been faced by industry, and in at least one case, that of machine tool gray, has been satisfactorily solved.

### Forms and Records

Standardization of the equipment that houses office records leads directly to standardization of the forms or records themselves. This involves questions of paper, size, grade, color, form, arrangement, quality, and wearability. It covers a tremendous field which offers great possibilities for economy. A start has already been made on this problem by the National Association of Purchasing Agents through the development of a simplified invoice form several years ago.

### **Physical Factors**

Questions of heat, light, ventilation, and noise control are office problems that lend themselves to standardization with great benefit to management. How much light is needed for different types of office work? What constitutes "satisfactory ventilation" and how can it be obtained? Do some departments need noise control for efficient performance of their duties, and others not? How can the noise level be tested so that comparable results can be obtained and the need for noise control determined? What office temperatures should be sought as being conducive to peak efficiency of personnel engaged in various office functions? There is need for uniform and accepted standards, and many of these standards will affect other phases of the problem. Determination of uniform and accepted standards of lighting for various types of office activities, for example, will in turn affect the design and style of the lighting fixtures used.

#### Supplies

There is an almost unlimited field for standardization of office supplies. Thousands of items are susceptible to study. There are binders, for example, which are closely allied to the problem of office forms and records. Standardization of the position of the binder rings would affect the standardization of the punchings of (Continued on page 256)

It's avways Lood Jaste!

ATURALLY things do come up sometimes that prevent your going where you'd planned, so of course you write immediately explaining the situation. The same good taste that tells you to write, requires your hostess to accept your honest reasons. Don't, of course, expect to be invited again if she learns you've gone to her arch rival's party the same night.

If you want to be as correct in your correspondence as your conduct, you'll find Sheppard Envelopes an able ally. Right for social or business usage, Shepco Envelopes with the Flavor-Seal flap are always in good taste... for any occasion.



Number 1 Envelope Terrace • 'Phone 2-4674

WORCESTER . MASSACHUSETTS



This new post-war "Pendaflexer" brings you double filing convenience — a handsome, sturdy steel filing cabinet on wheels, plus hanging Pendaflex\* folders.

Roll the "Pendaflexer" anywhere you

Roll the "Pendaflexer" anywhere you need it—that's convenience number one. Then file and find papers instantly in modern hanging Pendaflex\* folders—that's convenience number two!

It's a combination that will break every filing and finding speed record wherever used. Get your "Pendaflexer" now-immediate delivery.

Reg. U.S. PAT. OFF

32	1 Mor	rgan	Aven	ue, Br	ooklyn	6, N.	Y.
	Send	Coup	on for	Illustr	ated Pr	ice List	
Name			**********				
Addr							



(Continued from page 255)

the forms and records to be kept in them. Ink is an important commodity in the office, and there is need for established standards as regards fadeability and fluidity. Then there are such items as carbon paper, typewriter ribbons, paper clips, pencils, erasers, and rubber bands, for which performance and quality standards are needed.

Terminology

There is a wide variation in the use of many office terms, so much so that in general we do not speak the same langauge in the office. A simple example is that of ordinary job titles and job descriptions. The terms "cashier", "file clerk", "secretary", "bookkeeper" do not mean the same thing in all organizations. The term "dismissal" means one thing in one company, another thing in the one down the hall. There is considerable variation in the terms used in connection with the printing or reproduction of office forms and records. All this indicates that there is a big field for exploration and standardization in the field of terminology. It would be helpful if we could all talk the same language.

### **Procedures and Routines**

The increasing number of governmental statutes and regulations affecting business has emphasized the need for simplified and standardized procedures and routines — such as time-recording practices and record-retention schedules. Common agreement on the standard "period of keep" for different types of office forms and records would be a help as a guide to those in charge of office filing systems.

### Personnel Factors

In the field of personnel there are many opportunities for the development of standards. What, for example, are the physical requirements for various types of office activities? And what might be considered adequate safety standards in the operation of an office?

#### Performance

There is serious need for some authoritative data as to what constitutes practical production standards for various office operations. Office managers would be eager to have some standard guide by which to judge reasonable performance on such operations as addressing envelopes, filing, opening and sorting mail, and many other activities that are carried on within the office. One writer several years ago indicated how complicated the problem could be when he asked: "How would you measure typing output - on the square inch, the page, or the 'key-stroke' basis? How would you make allowance for single and double spacing, for different number of copies typed at one time, for simple, clear copy as opposed to difficult, interlineated copy, for address and salu-tation in a letter?"

### **Current Progress**

Progress has already been made in the development of standards in some of these fields. There are a few isolated examples where the standardization

problems involved have been recognized by outstandingly progressive companies and where standardization programs for office equipment, forms, and procedures have been inaugurated. Any one company is limited in the results it can accomplish along these lines, however, and its activity needs to be correlated and coordinated with that of other organizations concerned with the manufacture and use of a wide variety of office equipment and supplies. In this field more than in almost any other the standards of one group must interlock with those of other groups. Office standards need the prestige of official and national adoption in order that the maximum benefits can be obtained. Worthwhile results are possible only if there is a cooperative approach to the problem.

The National Office Management Association is an organization whose membership includes some 6,500 executives immediately concerned with office management responsibilities. During the 27 years of its existence it has grown consistently in size and importance. In view of the fact that the quality and efficiency of office operations have a direct bearing on the results obtained by business as a whole, the Association has an active stake in promoting and facilitating better management in the office and the more economical conduct of office operations. In the earlier stages, research efforts of the Association were devoted largely to surveys of current practices in effect in various member companies. This information has proved helpful, but it was



Get your mail out on time with SoundScriber electronic dictating equipment. SoundScriber saves time because it's simple, eliminates shaving of wax cylinders, avoids breakage. Lower first cost... much lower operating cost. Plastic dischandles and files like a letter. Write for complete story on SoundScriber—the machine that serves the mind.

### JOUND CRIBER

ELECTRONIC RECORDING EQUIPMENT

SOUNDSCRIBER CORP., Dept. PC-1, New Haven 4, Conn. Send sample SoundScriber disc and full information.

NAME	
COMPANY	
ADDRESS	

soon recognized that the fact that certain practices were preponderantly in use did not necessarily mean they were the most effective.

Accordingly, last year the Association embarked on a long-range program of standardization in the office, and a standardization committee was set up to work towards the development of approved practices.

It was soon realized, however, that many of these problems involved interests beyond the strictly office management field. There is the producer's as well as

the user's angle to consider.

In order to broaden the scope of its standardization activity and to get the benefit of specialized facilities in the development of this project, the Board of Directors of the National Office Management Association last January authorized a formal request to the American Standards Association for a broad, cooperative standardization effort under the auspices of that organization. As a result, a meeting for representatives of office equipment manufacturers, Government procurement agencies, and other groups that had shown an interest in office standardization was called by the ASA on August 21. group agreed that the standardization along the lines outlined above is needed and that a standardization program should be undertaken. However, it recommended to the American Standards Association that work be started first on selected sections of the large over-all problem. Specifically, the recommendation was that three committees be organized, one to work on standards for office equipment (desks, vaults, files, etc.); the second to work on standards for labor-saving office machines (typewriters, duplicating machines, calculating machines); third, to work on office supplies (ink, paper, pencils, erasers, rubber bands). It was the recommendation of the meeting that the National Office Management Association be asked by the American Standards Association to accept sponsorship for the committees on office equipment and office supplies. The question of sponsorship for the project on labor-saving machines was left open until the ASA had an opportunity to investigate this subject further. To my mind, this action is one of the most important and most potentially valuable steps that has yet been taken in the field of office management.

### TEC PENCIL COMPANY EXPANDS OPERATIONS

The TEC Pencil Company, manufacturers of precision loose lead holders designed especially for draftsmen and engineers, and a general line of pencils, erasers, etc., in addition to recently moving into new plant at 3512 Helms Avenue, Culver City, Calif., has appointed the following representatives:

H. O. Atwood Associates, 10 Thames St., New York; Elmer Krumwiede & Associates, 336 So. Jefferson Blvd., Chicago; Bart Fulton, Shepherd Arts Bldg., Houston, Tex.; and Carl Draper & Associates, 843 South Los Angeles St., Los Angeles, Calif.



### FOR TIME-SAVING TYPING ...

Webster's Micrometric Carbon Paper—the only carbon paper with the numbered scale — will help every secretary in your offices turn out better spaced letters and reports — faster.

### PLUS - "ON TIME" DELIVERIES ...

You're assured of quick deliveries, because Webster's factory warehouses are located in key cities from coast to coast. And there are more than 1500 Webster dealers always ready to meet your complete office needs. That's a good thing to remember the next time you want carbon paper or typewriter ribbons; duplicating carbon papers and accessories; carbon paper ribbons for photo-offset work; ribbons and carbons for Elliott-Fisher, Addressing, Adding and International Business Machines. Consult your nearest dealer or write to F. S. Webster Co., 7 Amherst Street, Cambridge 42, Massachusetts.

Better buy ...

### **WEBSTER'S**

Micrometric Carbon Papers and Typewriter Ribbons

### NEW "CLIX" PAPER PUNCH

The New England Paper Punch Company of Natick, M'assachusetts, has brought out four new models in the "Clix" paper punch line. Included in the new "Clix" products are: Model 7, a 7-hole punch which punches all 7



This is the "Clix" double duty punch.

holes for 7-ring binders at a single squeeze; model 32, an ingenious double duty punch which is instantly adjustable for punching either 2 holes or 3 holes, simply by snapping a button. Another new item in the "Clix" line is model 275. which punches two 1/4" holes, 23/4" on centers: an adjustable guage permits punching of sheets up to 12" long. Rounding out the line is "Clix" model 100, a single hole punch that operates with light pressure of the thumb.

### **EVERSHARP BROADENS** RESEARCH ACTIVITY

1 1 1

A broad program of research, engineering, and new products development involving an expenditure of approximately \$1,000,000 has been launched by Eversharp, Inc., New York, according to announcement by Dr. H. Hugh Willis, vice president, who will direct the program. Several new products are already going through tests and some are scheduled for marketing next year, he said. More than 50 top-flight engineers, chemists and technicians in various fields of the applied sciences have been added to the company's research and engineering staff in the past few months, he revealed. A recently acquired four-story building with 180,000 square feet of floor space in Long Island City, N. Y., is housing their activities.

### NEW LETTER SCALE

The Model 100 USPM Letter Scale, manufactured by Commercial Controls Corporation, Rochester 2, N. Y., now



Commercial Controls' new letter scale

incorporates two new features: The chart has been revised to show the new five cent rate on domestic airmail. The computations per ounce are carried across

the face of the chart to the full capacity of the scale, the same as they are shown for all classes of domestic mail. The chart being an inverted fan type permits wide easy to read graduations.

A new, convenient V-type platform also has been designed for this scale, making it possible to hold envelopes of any size, packages of any shape and round mailing tubes. An adjustable check link insures weighing accuracy.

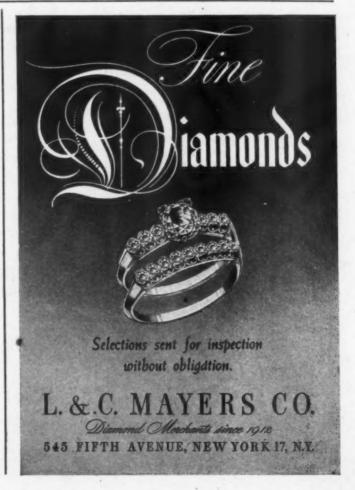
### PRIORITIES GRANTED WOOD PULP PRODUCERS

To help relieve the acute paper shortage, wood pulp producers have been made eligible for priorities assistance in obtaining materials needed to increase their output, the Civilian Production Administration announces.

Action was taken by amending Schedule 1 of Priorities Regulation 28 under which CC ratings may be granted to assist in the production of materials which are designated as critical.

The domestic wood pulp industry currently is attempting a plant expansion program in an effort to offset the small wood-pulp imports from Scandinavian countries which have contributed to the present paper shortage, CPA said. Wood pulp producers only will be granted ratings on orders for capital equipment except specialized machinery, materials for maintenance, repair and operation and for materials for expansion of existing plants





#### CRADLE 'PHONE HOLDER



Covered spring steel 'phone holder that can be used on any cradle type 'phone, which weighs less than an ounce, and "just snaps on the 'phone" is announced by Hormuth Brothers Co., 411 North Foothill Road, Beverly Hills, Calif. Maker states that it can be used while sitting, standing, moving or bending over.

### MAGNETIC WIRE RECORDERS FOR OFFICE AND FIELD

Two models of magnetic wire recording instrument, one for heavy-duty office work—dictation, transcription and play-back—the other a portable model for two-way air communication use by field workers and others, are announced by the Peirce Wire Recorder Corporation,



Chicago, Ill. Remote control for the office unit permits dictation to the recorded from 50 to 100 feet. For transcribing the operator controls the recorder by a button attached to the typewrier or by a foot pedal.

In recording, sound is "frozen" magnetically on a thin stainless steel "thread" which comes in reels weighing only a few ounces and having a capacity of 66 minutes to over 2 hours continuous recording. Recorders may also be used for meetings through one mike or a mixer controlling four mikes. Recorded material may be played back as many as 100,000 times. Record spools can be mailed or carried for branch or field use. Recordings may be erased automatically in the process of dictating a correction or using the wire for new recording.





For advertising and

book rates, call your

agency or write . . .

MacRae's
Blue Book

A DIRECTORY OF AMERICAN INDUSTRY

26 E. HURON ST. CHICAGO 11, ILL.



### Ready Now!

RediFixt 1947 **W-2** 

Withholding Tax Form

Write today for sample on officially approved PINK paper

### CONSOLIDATED BUSINESS SYSTEMS, Inc.

Dept. 006 30 Vesey Street New York City, 7

### The Desk of Tomorrow



'The Desk of Tomorrow", created by the Wood Office Furniture Institute, is a forerunner of things-to-come in office furniture. The desk, with expansive flared top, features a built-in automatic device to take dictation, a built-in shaver and radio, and a burn-proof top. The companion chair is streamlined in matching style with the desk with a mechanism that adjusts the seat and back to the tilt of the body, but keeps the occupant's feet on the floor. Both desk and chair are adjustable in height. The interior of the desk is designed to meet the needs of modern business. Drawers move with finger-tip action. Special compartments and trays meet every need and there is a locked compartment for personal papers.

Above is a view of the working side of the "Desk of Tomorrow". The small picture below shows the front of the desk. The desk and the chair are adjustable in height.



### DE LUXE STENCIL CABINET

A new deluxe stencil cabinet for the shipping room has just been announced by Diagraph-Bradley Stencil Machine Corporation. This cabinet or desk is made of heavy gauge steel, reinforced so



Cabinet is made of heavy gauge steel. Each side drawer provides space for 600 cut stencils.

that it is capable of holding any size stencil machine. Each of its large side drawers has space for over 600 cut stencils and comes equipped with alphabetical dividers. The top of the cabinet is 30 inches from the floor, so that the shipping clerk can easily reach cut stencils without stooping or bending. The clip board at the top of the cabinet is hinged and has a tension spring so that orders can be easily slipped under the clip to put them at the right height for easy reading.

them at the right height for easy reading.
All sizes of stencil board can be kept in compartments in the top of the cabinet.
There are partitions in the bottom of the cabinet, each large enough to hold a five gallon can of stencil ink. Drawers are set on roller bearings.

### CENTRAL PAPER CO. REORGANIZES LABORATORIES

Robert L. Knickerbocker has been appointed Director of Control Laboratory of the Central Paper Co., Inc., Muskegon, Mich. The new research laboratory is nearing completion, and Mr. Knickerbocker, chemist with the company for a number of years, will be in complete charge of the technical control of the company's processes and products.

### REDESIGN LIQUID DUPLICATOR

Illustration shows redesigned liquid duplicator which has been announced by the Wolber Duplicator & Supply Co., 1201 Cortland St., Chicago, Ill. Feature of the new machine is the use of aluminum to replace iron and steel parts, with the result that the new machine is 20 lbs. lighter in weight than former machine.



Wolber's Redesigned Duplicator

Accordingly it is easier to handle. Aluminum is used for the drum and side castings. Some of the rollers are also made of aluminum and the maker states that they have proved as efficient as rubber.

### ROLLAWAY FILE ANNOUNCED BY RED LINE CO

The new carrier file, The Executive, now being introduced by Red Line Manufacturing Company, 418 S. Clinton St., Chicago 7, Illinois, is of all steel con-



The Executive Carrier File

struction and features a roller bearing top that rolls out of the way on the back when the file is in use. Closed the file is dust-proof, fire-resistant and may be used as a table top. Other features include side grooves for hanging folders, bottom groove for spring controlled follow block and guide rod for regular folders. The welded top, the sides and bottom are of heavy gauge steel, the legs of solid steel, all with a beautiful olive green Hammerloid baked enamel Free rolling casters assure easy portability. The Executive is a quality built article, has smooth rolled edges, snag-proof, and measures 15 x 18 x 27 inches high, 93/4 inches deep.



### Performance-Proved

### ROLLS

### for ALL DUPLICATING REQUIREMENTS

### from ONE SOURCE-COLUMBIA

Why scatter purchasing, when you can get quality, performance and delivery on rolls of all types from one source—Columbia—at a substantial saving.

Rolls of various types are being used all the time in teletypes, billing, bookkeeping and adding machines — and in office duplicators, too. Carbon in large rolls is used extensively for pattern work, tracings and signs.

Columbia Rolls of all types give outstanding performance. Columbia dealers and branch offices combine to give splendid





E SE

gned or cul lodgy withou gs. Also used by sign or

COLUMBIA Colls

FOR ALL TYPES

## PERSONALITIES in the NEWS

William J. Starr has been appointed Purchasing Agent for the White Motor Co., Cleveland, 1, Ohio, according to an announcement by Harold A. Manderson, Director of Purchases. During the First

Andrew VanBeek has been named Director of Purchases for the Hercules Powder Company, Wilmington, Del., succeeding William J. Austin who retired December 31st. Previously Mr. VanBeek

Emil Schnedorek has been selected to handle all industrial and engineering purchasing for the General Tire & Rubber Co., Akron, Chio, according to an announcement by R. M. Graham, Director



William J. Starr

World War Mr. Starr, who graduated from Ursinus College in 1914, served overseas for two years with the AEF as a First Lieutenant. From 1919 to 1943 he was associated with the Lycoming Division, Aviation Corporation, in the planning and production department, as Assistant Purchasing Agent and as Purchasing Agent. From 1943 to 1945 he was Director of Procurement for the Colgate Aircraft Corp., Amityville, N. Y. He joined the White Motor Company in 1945 as Assistant Purchasing Agent. In his new capacity of Purchasing Agent he is in charge of the administration of the Purchasing Division under the Director of Purchases.

W. C. Erkert, director and Purchasing Agent, Keystone Steel & Wire Co., Peoria, Ill., has been appointed Director of Purchases. R. E. Sommer, President of



W. C. Erkert

Keystone, stated that the company's expansion program will be facilitated by Mr. Erkert's assumption of the direction of purchases. F. A. Little, Assistant Purchasing Agent since 1941, has been appointed to the position of Purchasing Agent.



Andrew VanBeel

was Assistant Director of Purchases.

Mr. Austin has been associated with the explosives industry since 1902. He joined the Aetna Powder Company that year as salesman in Chicago and was made manager of the Chicago office in



William J. Austin

1912. He continued as manager after Hercules purchased the Aetna Company in 1921. In May 1942, he was appointed director of Purchases in Wilmington.

Mr. VanBeek joined Hercules in June 1923, as chemist at the Kenvil, N. J. Experiment Station, after graduating from the University of Iowa. In 1925 he was made chief chemist at the Hercules Bessemer, Ala. explosives plant, being made acid supervisor there a year later. From 1930 to 1939 he was assistant superintendent at the Ishpeming, Mich. and Kenvil, N. J. explosive plants, becoming superintendent of the former. In 1940 he became assistant manager of the Hercules-operated Radford Ordnance Works, and was appointed manager of the plant in 1941. In March 1946 he was appointed Assistant Director of Purchases.



Emil Schnedarek

of Purchases. Mr. Schnedarek served as project engineer during the building of three General Tire & Rubber Co. plants, and at the time of his appointment was serving as project engineer at the company's Waco plant. Prior to going to Waco in 1943 he served as project engineer on General's plant constructions at Caracas, Venezuela and at Poznan and Debica, Poland, His three years in Poland were abruptly terminated by the Nazi invasion in 1939.

Richard J. Boylon has been elected a vice-president of the American Tobacco Company. Mr. Boylan has been Director of Purchases of the company for the past 20 years and secretary of the company since 1928. He entered the employ



Richard J. Boylan

of the company in 1901 as an office boy, and has worked his way up through successive promotions since then. John W. Hanlon, assistant secretary, was elected to fill the vacancy created by Mr. Boylan's promotion.

(Please turn to page 264)

## Making Production" Tick"

## A Typical Example of How Sun's "Job-Proved" Oils Speed Up Production and Cut Costs

A well-known manufacturer of clocks was faced with a smoking hot problem in his machine shop. The tools on a high-speed machine were getting so hot they were losing their edge and ruining work.

A fan actually had to be installed to drive off the smoke, and the management was even designing a special cooler for the cutting oil.

Then they talked to a Sun Engineer, who recommended a Sun cutting oil, "Job-Proved" in hundreds of plants.

This oil, with its special fast-cooling properties, actually permitted an increase in production of 15%. Tools now hold their edge 20% to 30% longer, and the machine uses 50% less oil. The fan has been discarded. The cooler plans have been "permanently filed." Whereas finished parts formerly were too hot to handle, now they are only lukewarm.

Throughout industry you will find experienced Sun Engineers ready to work with you on time-saving and money-saving assignments like this.

For cutting oils . . . processing agents . . . hydraulic oils . . . petroleum spirits . . . lubricants . . . or other "Job-Proved" oil products, call your local Sun office today.

SUN OIL COMPANY • Philadelphia 3, Pa.

Sponsors of the Sunoco News-Voice of the Air—Lowell Thomas

SUNOCO SUN JOB-PROVED' INDUSTRIAL PRODUCTS

### (Continued from page 262)

George T. Deaney has been named Purchasing Agent of the Weston Electrical Instrument Corp., Newark, N. J., succeeding A. R. Briggs who has retired



after 45 years with the company. Mr. Deaney joined Weston in 1926 under its co-operative plan of industrial engineering training. He completed this training in 1928 and the same year was graduated from Newark College with a B. S. degree in electrical engineering. For the past 18 years he has served the company in various capacities, as time study engineer, department foreman, cost estimator, etc., and has recently been department head in charge of mechanical engineering. He is a member of the Society of Advancement of Management.

Arthur H. L. Hunnius has been named Purchasing Agent for the Champion Shoe Machinery Co., 3717 Forest Park Blvd., St. Louis, Mo. He was formerly Assistant Purchasing Agent for the Busch-Sulzer Bros. Diesel Engine Company.

Stanley Meehan is now handling the purchasing for the F. S. Lang Mfg. Co., Seattle, Wash., succeeding Victor Herbert, deceased.

William T. Kelly, Jr., formerly Purchasing Agent of the American Brake Shoe Co., New York, N. Y. before becoming president of the Engineered Castings and



Kellogg Divisions, has been elected a vice-president of American Brake Shoe Co. A graduate of Phillips Andover Academy and Yale University, he is a member of the American Iron and Steel Institute and the N.A.P.A. Other top division executives also elected vice-presidents include John S. Hutchins, president Ramapo Ajax division; Thomas W. Pettus, president National Bearing division; and Joseph B. Terbell, executive vice-president American Manganese division.

Barton I. Hogarth, graduate mechanical engineer, has been named to the newly-created position of Purchase Engineer in the Equipment and Supplies Division of the Pennsylvania Salt Manufacturing Co., Philadelphia, Pa., Purchasing Department. Mr. Hogarth came to Pennsalt from the Manhattan District Project and was formerly associated with the Carbide and Carbon Chemical Company. N. W. James is General Purchasing Agent.

Ralph Dempsey was recently appointed Purchasing Agent for Bishop & Babcock Mfg. Co., Cleveland, Ohio, succeeding John E. O'Laughlin who is now in the sales dept.

Joseph W. Nicholson, Purchasing Agent, City of Milwaukee, Wis., an outstanding authority on municipal purchasing, spent the week of December 2-7 in New Orleans, La., at the invitation of Mayor De Lesseps Morrison, to survey the purchasing problems of that city and to assist in the reorganization of the city's pur-



chasing department. The New Orleans Purchasing Agents Association, whose Committee on Centralized Purchasing had recommended that Mr. Nicholson's advice and guidance be obtained by the city government, held a special luncheon meeting in his honor on December 5th which was attended by numerous city officials and civic executives.

Mr. Nicholson has been connected with

the purchasing department of the City of Milwaukee since 1919, and has been City Purchasing Agent since 1923. Modern and efficient methods and procedures for the handling of city purchases which he recommended in 1923 were adopted by the Central Board of Purchases and have since been recognized nationally as standard procedures for public purchasing departments. He is a former president of the Milwaukee Association, former chairman of the Governmental Purchasers' Group of the N.A.P.A., and also a former president of the National Association. He also was instrumental in organizing the National Institute of Governmental Purchasing, the membership of which includes representatives of federal, state and local units of government, and other public agencies of the United States and Canada.

C. J. Thompson. Director of Purchases, Cleveland Branch, HyGrade Food Products Corp., served as convention chairman at the company's annual national executives convention, held recently in Cleveland, Ohio. Allen M. Adams has been named Director of Purchases for Crosley Motors, Inc., Cincinnati, 14. In the past he has served as Director of Purchases for



Massey-Harris, Racine, Wisc., as general manager of the Adams Mfg. Co., and recently as Manager of Purchases for the Prefex Corp., Milwaukee, Wisc., from which he resigned prior to joining Crosley Motors.

Tom Cook has been appointed Purchasing Agent for Talso Asphalt & Refining Co., Dallas, Texas, succeeding R. B. Slay who has become a manufacturer's agent. He served as assistant purchasing agent under Mr. Slay prior to the war, and was acting purchasing agent while Mr. Slay was in the armed forces.

W. W. McIntire has been named Director of Purchases, and Colin Gardner III has been named secretary, of the Gardner-Richardson Company, Middletown, Ohio, filling the positions vacated by the resignation of R. R. Richardson as vice-president and secretary. Mr. Richardson continues to serve on the Board of Directors.

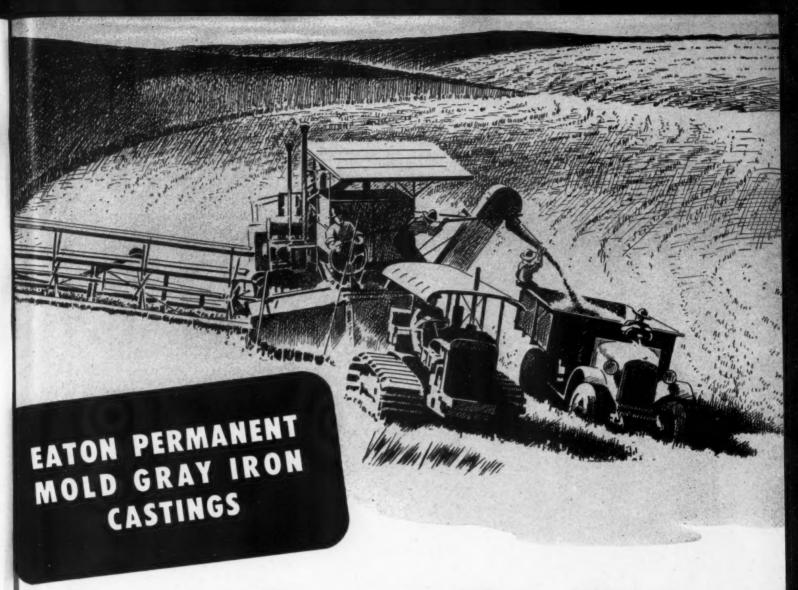
Quentin D. Schwob has been appointed Director of Purchases for the R. H. Bishop Company, Champaign, Ill. Mr. Schwab has been associated with the com-



pany since 1935 in the Engineering Department and according to a statement by R. H. Bishop, he has the technical background of knowing the material and supply requirements of the company.

M. C. Michener has been named Purchasing Agent for Cragin & Co., Seattle, Wash., succeeding Robert R. Strapp who recently retired after 35 years with the company. Michener, formerly a buyer for Boeing, has been with Cragin since 1935

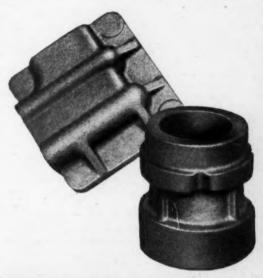
(Please turn to page 266)



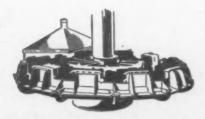
## Contribute Stamina to Farm Machinery

Strength, free machinability, good bearing surfaces, uniform structure—these are qualities which make Eaton Permanent Mold Gray Iron Castings ideal for a wide range of applications in the manufacture of farm machinery. Their dense, non-porous structure insuring freedom from leakage under pressure recommends Eaton Permanent Mold Gray Iron Castings particularly for hydraulic equipment. Proper annealing insures that castings will hold size and not distort after machining.

Eaton Foundry Division engineers will be glad to discuss the application of Permanent Mold Gray Iron Castings to your products. Send for your copy of the illustrated booklet "The Eaton Permanent Mold Process."



© 1947, EATON MFG. CO.



THE EATON PERMANENT MOLD MACHINE IS A SYMBOL OF THE QUALITY OF GRAY IRON CASTINGS PRODUCED BY THE PERMANENT MOLD PROCESS.

EATON

MANUFACTURING COMPANY FOUNDRY DIVISION

9771 French Road . Detroit 13, Michigan

(Continued from page 264)

Guy E. Davis has been named Purchasing Agent for the Collins Company, Colinsville, Conn. Correction is hereby made on spelling of Mr. Davis' name as appearing in our November issue.

John Mazouch, Director of Purchasing for United Wallpaper, Inc., and its sub-sidiaries, Trimz Co., Inc., and Varlon, Inc., announces that the purchasing department heretofore located at the company's Chicago plant at 3330 West Fillmore St., is now operating from the 22nd floor of the Merchandise Mart in that Correction hereby made on spelling of Varlon, Inc., as shown in previous

Colonel Letcher O. Grice has been appointed Commanding Officer of the Quartermaster Purchasing Office, 111 East 16th St., New York, N. Y., succeeding Col. Herbert A. Gardner now on a new assignment in Washington D. C. where he will set up a procurement planning



Col. Letcher O. Grice pinning Army Commendation Ribbon on Col. Herbert A. Gardner

organization in the Office of the Quartermaster General.

Col. Grice, a veteran of over 30 years with the Quartermaster Corps, returns to the New York area, where he is well known in trade circles after serving in various posts during World War II. His last assignment in Eastern area was from 1934 to 1938 when he was in charge of procurement activities at the Philadelphia Quartermaster Depot.

Donald C. Higley has been appointed Purchasing Agent for wool with the Bigelow-Sanford Carpet Company, New York, N. Y.

Albert C. Walsh, Purchasing Agent for Timken Roller Bearing Company, Canton, Ohio, has retired after 26 years of service with the company. Mr. joined the Timken firm when it pur-chased the assets of the Gilliam Mfg. Co., with whom he was then employed.

David M. Nason has been appointed Purchasing Agent for Westinghouse Electric Corporation's X-ray and Industrial Electronics divisions, Baltimore, Md. He was formerly assistant purchasing agent for the Aviation Gas Turbine division in Philadelphia, Pa.

Clarence B. Townley has been appointed Director of Purchases of the General Instrument Corporation, Newark, N. J.

Edward S. Axline Purchasing Agent, H. W. Gossard Company, delivered an extensive report on market conditions of textiles, natural rubber thread, steel and metal sundries used in the corset industry, at a recent annual meeting of the Corset, and Brassiere Association of America, New York City.

L. C. Worner has been named Purchasing Agent for the University of Idaho, Warsaw, Idaho, succeeding Mrs. Evelyn

M. C. Staley, formerly of the order desk at A.M. Castle & Co., Seattle, Wash., has been appointed Purchasing Agent of that company. He succeeds Carl C. Mueller who has become a vice-president of the company.

Morvin C. Fox has been appointed Purchasing Agent for Evergreen Theaters Corp., Seattle, Wash., succeeding Lowel Parmentier, now with the concessions department.

Bert F. Downey, secretary-treasurer, Purchasing Agent and general manager of the Yost Superior Co., Springfield, Ohio, was re-elected director and vice-president of the Mechanical Spring Manufacturers Association for another three-year term, at the association's annual meeting in New York City.

A. M. Smith has been appointed City Purchasing Agent, Shreveport, La., succeeding W. M. Redditt, Jr. He has been connected with the water department for the past 28 years.

Lieut. Colonel E. J. Plato who has been on military leave since the outbreak of World War II, will resume his position as City Purchasing Agent at Sacramento Calif., on February 1st, it is reported. During his absence the position was held by William Robbins.

C. Irving Hansen, president of the Purchasing Agents Association of Washington, D. C., addressed the weekly luncheon meeting of the Washington Civitan Club at the Mayflower Hotel on December 17, 1946, at which he discussed his experiences establishing centralized procurement in Iran during the

Clifton E. Mack, Director of Procurement, Treasury Department, Washington, and National director of the Washington Association, addressed the club "Human Relations in Management and Purchasing as a Partner in Management," the previous month.

Both of these addresses were arranged by the Public Relations Committee of the Washington Association. The committee is making arrangements for talks by members of the association before the Kiwanis and Rotary Clubs.

Roland M. Brennan, chairman of the Committee. is Purchasing Officer for the District of Columbia, Washington, D. C.

### AMONG THE COMPANIES YOU BUY FROM

Chicago, III.-Shakeproof Inc., Division of Illinois Tool Wooks, announces five changes among executive personnel. Eugene W. Fuller, division manager has relinguished position of sales manager



E. W. Fuller

to devote his time to the broader efforts of the management of the organization. B. F. Bales, formerly assistant sales manager has been named sales manager. Russel H. Maude has been appointed sales manager of the Detroit district. John B. O'Connor, formerly Detroit district sales manager, has been appointed chief engineer, and Walter M. Hanneman has joined the SEMS Licensee Division as chief enginee.

Mount Gilhead Ohio - The Hydraulic Press Manufacturing Co., Fred C. Ziesenheim has been appointed sales manager of Plastics and Die Casting Machinery Division.

Eastern Seaboard-Ahlberg Bearing Co., Chicago, Ill., announces the appointment of P. J. Aquilino and Henry J. Schuster



P. J. Aguilino H. J. Schuster

to assistant managership in Washington and Philadelphia, respectively. James Herman is Eastern District manager.

Chicago - Illinois Tool Works announces the appointment of Dunçan S. Campbell to its staff of field engineers.

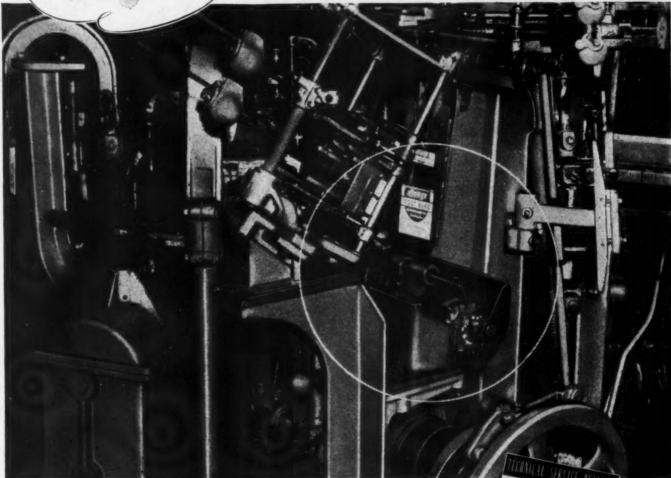
Tulsa, Oklahoma—Hewitt Rubber Co., of Buffalo, N. Y., industrial rubber products, announces the appointment of Knight Manufacturing & Supply Co., 923 East 4th St., headed by Frank Monahan and Dean Knight, as distributors.

St. Louis, Mo.-Superior Engine Division, National Supply Co., announces appointment of J. D. Connor as district manager with offices at 1405 Boatmen's Bank Building.

(Please turn to page 268)



## NEW COOLER-PROOF GLUE HOLDS LABELS TIGHT IN WET STORAGE



ACKERS of foods and drinks in glass subjected to refrigerator or wet storage should investigate this remarkable new Cooler-Proof label glue. For, it offers new assurance that labels will reach consumers neat, trim, INTACT. . tightly sealed to glass containers. Fine pre-war materials and war-developed Paisley scientific techniques were combined by our adhesive engineers to produce this better label glue. COOLER-PROOF is a jelly type, flexible, non-crystallizing glue with an unusually high degree of resistance to dampness and water immersion. Operates efficiently at speeds of 120 or more containers a minute. Economical . . a thin film gives maximum tackiness to hold labels in place. One glue pot filling usually serves the average labeling machine on a full 8-hour shift. Packed in 1, 5, 10, 30 and 55 gallon containers.



FREE Technical Service Bulletin No. 15

Get this informative illustrated Bulletin which contains complete data about COOLER-PROOF Label Glue. description and properties, how to use it, packings and prices, list of uses, and offers a free adhesive consulting service. Write or wire for your copy today!

### PAISLEY PRODUCTS INCORPORATED

Manufacturers of Glues, Pastes, Resin Adhesives, Cements, and Related Chemical Products

1770 CANALPORT AVE., CHICAGO 16, ILL. \* 630 W. 51st STREET, NEW YORK 19, N. Y.



## require fewer replacements cost less per year of service

In every respect—quality of materials, advanced design, finest precision workmanship—Lunkenheimer Valves are built to provide longer as well as more efficient and reliable service.

One or two new parts at long intervals make a correctly engineered, ruggedly constructed Lunkenheimer Valve as good as new. All Lunkenheimer parts are precision-made...perfectly matched... requiring no special fitting on the job.

Thus, when you install Lunkenheimer Valves you can look forward to purchasing fewer replacement valves... and to easier, lowercost replacement of present valves with parts quickly obtainable from your near-

est Lunkenheimer Distributor.

Remember—in utmost economy plus superior efficiency, Lunkenheimer products offer you greater value per valve dollar.



Lunkenheimer Distributors are located in principal industrial centers. They are important links in the Lunkenheimer chain of better, more efficient valve service—service that can save you time, trouble, and money.

## that can save you time, troub THE UNKENHEIMER

C O M P A N Y
CINCINNATI 14, OHIO, U. S. A.
NEW YORK 13, CHICAGO 6, BOSTON 10, PHILADELPHIA 7.
EXPORT DEPARTMENT: 319-322 HUDSON ST., NEW YORK 13, N. Y.

Portland, Cregon—Pennsylvania Salt Mfg. Co., industrial and agricultural chemical products Tacoma, Wash., announces the appointment of LeRoy M. Shaneman as district sales manager of its new sales office at 6400 N.W. Front St.

Rochester, N. Y.-Vascoloy-Ramet Corp., North Chicago, Ill., cemented carbide and



cast alloy cutting tools, announces the appointment of R. F. Hilbert as sales agent.

Cincinnoti, Ohio-Monsanto Chemical Co., Chemical Co., Plastics Division, St. Louis, Mo., announces establishment of a new sales office, January 1, 1947, with Edward T. McBride as branch manager. Territory includes parts of Ohio, Indiana, Kentucky, Tennessee, Pennsylvania and all of West Virginia.

Wilmington, Deloware—Hercules Powder Company announces the appointment of Henry A. Thouron as assistant director of sales of the Synthetics department.

New York, N. Y.—Udylite Corp., Detroit, Mich., announces that Charles W. Boll. Jr., has become a member of the staff



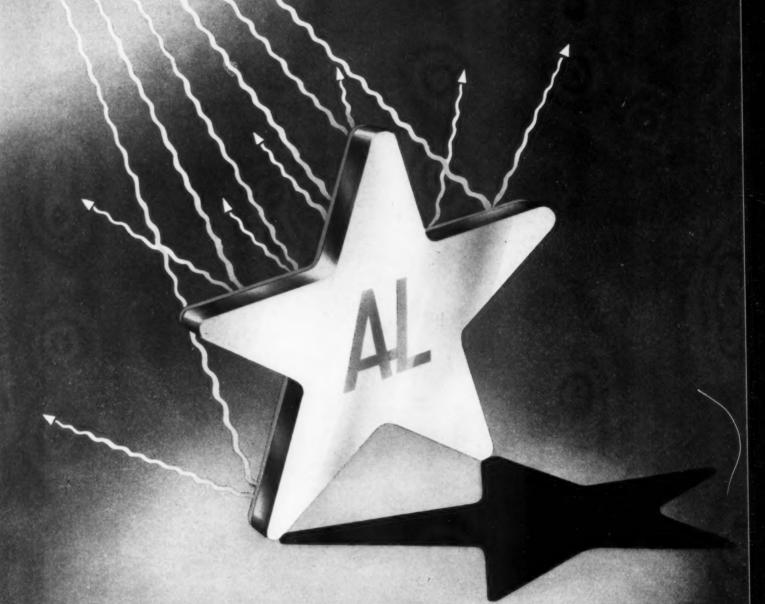
of the company's New York office. He will operate in Virginia, Maryland, Delaware and part of Pennsylvania.

Hartford, Conn. — Carboloy Company, Detroit, Mich., cemented carbide tools, announces the appointment of Silliter-Holden, Inc., 433 New Park Ave., as authorized distributor. Fred W. Lauer will act as carbide specialist.

Eastern Seaboard—Geary Stainless Steel Co., Baltimore, Md., announces the appointments of George McB. Peters, 520 White Building, Buffalo, N. Y. as district manager for Western New York, and Kenneth F. Vilsack, 1230 Rowan St., Louisville, Ky., as district manager for Kentucky and Southern Indiana.

(Please turn to page 272)





Among the many invaluable properties of stainless steel, you must give high rank to its great resistance to heat. We've gone on from there, too, and developed super-alloy steels in that field. Is heat-resistance a problem of yours—either in your product or your equipment? If so, investigate Allegheny Metal NOW. Production facilities are being steadily increased to meet the demand for it—therefore now's the time for you to think, plan and work with stainless for the future. • Let's get our engineers together.

ALLEGHENY LUDLUM STEEL CORPORATION, PITTSBURGH 22, PA.

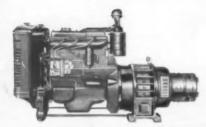
Pioneer in Specialloy Steels

CALL FOR AN ALLEGHENY LUDLUM ENGINEER



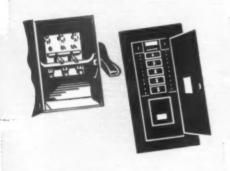
# SURPLUS ELECTRICAL EQUIPMENT

## from WAA



GENERATOR SETS—GASOLINE AND DIESEL ENGINE DRIVEN

Alternating and direct current, unused and in good condition. Also a wide variety of used sets.



Electrical jobbers and contractors will find a ready market for the many types of electrical equipment and materials offered by War Assets Administration. Since prices on this equipment are below the current market, every item will fill an urgent need and at a very real saving.

Industrial concerns may also acquire their electrical needs through any of the WAA Regional Offices.

Many scarce items are included in this sale. Act now to secure needed supplies and build up depleted stocks. All you need do is call or write your nearest Regional Office for complete information and prices.

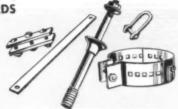
### PANEL BOARDS AND SWITCH BOARDS

For lighting and appliance circuits. All electrical services and voltages.

Priority purchasers have previously had an opportunity to fulfill their needs.

Purchasers of Pole-line Hardware for power must make certification required under Housing Expediter Priority Regulation 2.

These materials are available for export. Any question on export control should be referred to Office of International Trade, Department of Commerce, Washington, D. C.



### POLE-LINE HARDWARE

Many items of hardware for transmission, distribution and communication lines. Including: Pins, brackets, braces, bolts, clamps, hooks, rings, etc. Unused and in good condition.



### WIRING DEVICES

Hundreds of items for wiring systems, including attachment plugs, connectors, connector bodies, conduit fittings, outlets and switches.

## TATA DA A CORDO A DA CIDITORDATIO

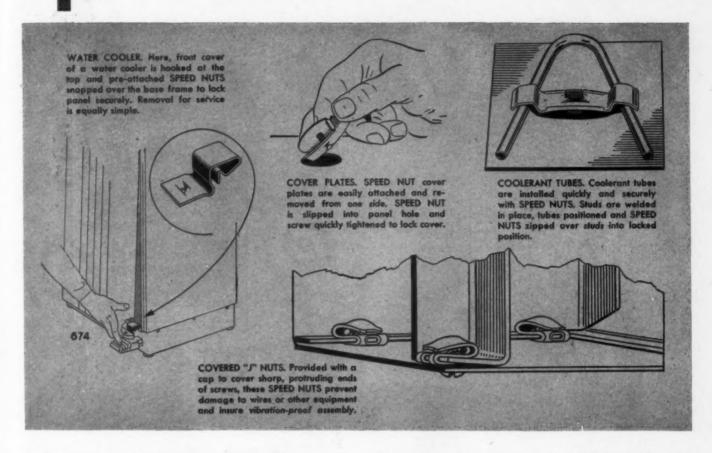
Offices located at: Atlanta • Birmingham
Boston • Charlotte • Chicago • Cincinnati
Cleveland • Dallas • Denver • Detroit
Fort Douglas, Utah • Fort Worth • Helena
Houston • Jacksonville • Kansas City, Mo.

GOVERNMENT OWNED SURPLUS

Little Rock · Los Angeles · Louisville
Minneapolis · Nashville · New Orleans
New York · Omaha · Philadelphia · Portland,
Ore. · Richmond · St. Louis · San Antonio
San Francisco · Seattle · Spokane · Tulsa

## Consider the fastener!

More and more Engineers are recognizing its true importance!



Design and Assembly Engineers, who perform seeming miracles every day, are fast becoming fastener conscious. For, with improved fasteners, even greater advantages are gained. Assembly is made faster and less costly. Fewer parts are used. Weight is reduced. And—that old bugaboo, "vibration loosening" is licked once and for all.

Tinnerman SPEED NUTS, widely used in place of ordinary threaded nuts and lock washers for better assembly, are also made in hundreds of special designs. With them, engineers can accomplish today what was impossible yesterday. SPEED NUTS open the door to design possibilities never before fully explored. Look over the sketches above. These are but a few of hundreds of SPEED NUTS

designed by Tinnerman to meet special needs. Possibly they will give you an idea of what can be done to secure better fastenings for your products.

If we can be of any help, why not write us today. Send complete details or, better still, send the product itself. We'll be glad to give you a complete fastening analysis.

### TINNERMAN PRODUCTS, INC.

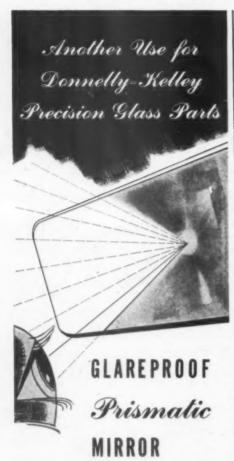
2050 Fulton Road . Cleveland 13, Ohio

- In Canada: Wallace Barnes Co., Ltd., Hamilton, Ontario
- In France: Aerocessoires Simmonds, S.A., Paris
  In England: Simmonds Aerocessories, Ltd., London
- In Australia: Simmonds Aerocessories, Pty. Ltd., Melbourne



\* Trade Mark Reg. U. S. Pat. Off

ASTEST THING IN FASTENINGS



This prismatic rear-view mirror deflects 90% glare. Made for the Guide Lamp Division of General Motors Corporation, this piece is an example of the finest quality mirror-surfacing and fabricating that is making Donnelly-Kelley famous for precision glass parts—in the industrial world of today. May we help you, too, with your flat glass problems. We invite you to send us your inquiry.



West Coost—Goodyear Tire & Rubber Company, Akron, Ohio, announces the appointments of C. B. Quillian and H. S. Quackenbush as sales representatives for the company at Seattle, Wash., and San Francisco, Calif., respectively.

Detroit, Mich.-H. K. Porter Company, Inc., Pittsburgh, Pa., announces the ap-



pointment of Gilbert E. Collyer as district manager of its Detroit office, 642 Book Building.

Conton, Ohio-Timken Roller Bearing Co., Canton, 6, Ohio, announces the appointment of Elmer Anderson, formerly service engineer, Milwaukee office, as assistant service manager.

Memphis, Tenn. — Allis-Chalmers Mfg. Co., Milwaukee, Wisc., announces the appointment of Albert P. Knauss as manager of the Memphis office. Mr. Knaus, formerly of the Tulsa district office, is a member of the Petroleum Electric Suppliers Association.

Los Angeles, Calif.—Turco Products, specialized industrial compounds, announces the appointments of L. H. Moulton to



L. H. Moulton

D. T. Buist

the post of national sales director, and D. T. Buist as assistant national sales director, both with headquarters in the firm's main offices in Los Angeles.

South Eastern Seaboard—American Mfg. Co. Brooklyn, N. Y., mill cordage, announces that Benjamin Gratz, Jr., recently released from the Navy, has rejoined the company's staff as southern sales representative, covering the states of Florida, Alabama, Georgia and North Carolina. Prior to the war he was Ohio representative.

Philodelphia Area—Raybestos-Manhattan, Inc., Manhattan Rubber Division, Passaic, New Jersey, announces the appointment of Joseph Glenn & Sons, Clifton Heights, Pa., as representatives.

(Please turn to page 274)





A. STRAND & CO.

5005 NO. WOLCOTT AVE. CHICAGO 40, ILL.

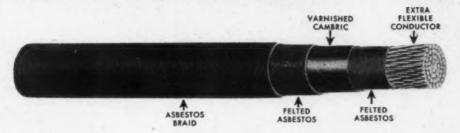
Prevent costly accidents from occurring in your plant.

Equip your workers with Olympic Safety Gloves. For over 20 years, Olympic gloves and safety clothing have protected industrial workers. Over 3,000 items: special gloves and finger cots of asbestos, leather, rubber, cotton, etc. Also leg-

gings, chemical and heat resistant clothing. For men and women. FREE: Large, profusely illustrated Catatogue

OLYMPIC GLOVE CO., Inc.
"Your Margin of Safety"
93 MADISON AVENUE, NEW YORK 16

(the cable with the asbestos suit)



#### IT'S MADE

- First, FELTED ASBESTOS, impregnated with heat and moisture-resisting compound, is applied directly over the copper conductor.
- Then, VARNISHED CAMBRIC, in a succession of helical tape wrappings, provides a layer of high dielectric strength insulation.
- Again, FELTED ASBESTOS, similar to the first layer, forms a flame, heat and fire resistant barrier to outside conditions.
- Finally, ASBESTOS BRAID, woven from heavy asbestos fibre threads, impregnated with a black moisture-resisting compound, secures the entire assembly in a durable, protective covering.

### ... RESISTS HEAT AND CORROSION

### HEAT AND FLAME RESISTANCE-

There's no need to explain the noncombustible nature of asbestos. Stable and permanent, asbestos has been used by the U.S. Navy for years to protect shipboard cables from the external fires of battle damage. Cables installed near furnaces, boilers, soaking pits and other hot locations need Okobestos protection.

CORROSION RESISTANCE - Wherever corrosive fumes, chemicals, oil, solvents are found, those are places for Okobestos cables, whose inert, durable asbestos coverings stand up indefinitely under these conditions.

MECHANICAL STRENGTH - Okobestos cables retain their strong, mechanical ruggedness. They have no organic outer coverings to rot or mildew.



The cable shown above is an extra-flexible strand Type AVA apparatus cable which can be operated up to 110°C (230°F) and is only one of many designs of Okobestos cables available for specific needs. Bulletin OK-2061 describes the types, ranges and applications. The Okonite Company, Passaic, New Jersey.

OKONITE insulated wires and cables





## always call SUPERIOR

Superior's method of continuous "quality-control" is your assurance of gray iron, alloy iron and electric furnace iron castings which meet the requirements of the most exacting specifications. Offering consistent uniformity of grain structure and cross section density, Superior castings may be milled, drilled, turned and otherwise machined easily and economically. That's why it always pays to call Superior.

◆ METALLURGICAL CONTROL

Closest control of the melt, assures highest quality of finished product.

MACHINABILITY

No hard spots to dull tools; uniform grain structure assures easy machining.

ACCURACY TO SPECIFICATIONS

Superior experience and "know-how" assure uniform castings accuracy.

CLEAN SURFACE

Superior castings have clean, smooth surface.



FOUNDRY, INC. 3542 EAST 71st STREET CLEVELAND, OHIO

MIchigan 3078

Pittsburgh, Pa.—Spang-Chalfant Division, National Supply Co., announces reorganization of its present sub-office in the Morris Building into a complete district office. William H. Taylor will be manager of the Philadelphia district which will cover eastern Pennsylvania, Maryland, Delaware, southern New Jersey, District of Columbia, Virginia and eastern North Carolina.

Milwaukee, Wisc.-Globe Steel Tubes Co.,



announces the appointment of Lee Mullen as general manager of sales.

Bultimore, Md.—Kennametal Inc., Latrobe, Pa., announces the establishment of an office at Room 1605 Court Square Building, Baltimore, Md. Harry W. Bearfoot, recently appointed representative working out of the Philadelphia office at 3701 N. Broad St., Philadelphia, Pa., will be in charge:

Newark, N. J.—Westinghouse Electric Corp., Pittsburgh, Pa., announces the appointment of Joseph S. Parry as Eastern district industrial manager. C. Swan Weber succeeds Mr. Parry as manager of the Newark office at 1180 Raymond Blvd.

Youngstown, Ohio—Republic Rubber Division, Lee Rubber & Tire Corp. announces three top promotions within the



G. L. Smith

sales department. G. L. Smith has been appointed sales manager and department head; Myron C. Meyer has taken over Mr. Smith's former post of traveling sales manager; and Ralph W. Deemer has replaced Mr. Meyer as assistant sales manager.

Eastern Seaboard—Kelly Reamer Co., Cleveland, Ohio, production tools, announces the appointment of O. A. Muenz Co., with offices at 239 Bloomfield Ave., Bloomfield, N. J. and 932 East Main St., Bridgeport, Conn., as exclusive sales agents for lower New York, northern New Jersey and Fairfield County, Conn.

(Please turn to page 276)



### HERE'S HOW THE FLEET DELIVERY **Delivers More Miles**

- \* DEEPER TREAD TOUGHER TREAD: The extra-thick tread of specially compounded rubber stands up longer to abrasive "stop-and-start" wear.
- \* RUGGED SHOULDER BUTTRESSES protects sidewalls against curb scuffing and bruising.
- \* CENTER RUNNING RIB makes rolling easier, adds to tread life.
- \* SHOCK PAD CONSTRUCTION puts two extra cord plies under the tread, guards against sudden impacts and blowouts.

U.S. ROYAL FLEET DELIVERY

## U. S. ROYAL Fleet Delivery IS BACK!

Here's news that means more tire mileage for delivery truck operators everywhere. The special "stop-and-start" tire -the U.S. Royal Fleet Delivery - is available again!

This famous tire is especially built for "stop-and-start" delivery service. From massive tread to buttressed sidewalls, its design and construction assure you many more miles at far lower cost per mile.

And today the U.S. Royal Fleet Delivery comes to you with tough tire rayon-a better, longer-lasting tire than ever before! Put this mile-saving specialist on your delivery jobs-see your U. S. Tire Distributor today!

**NOW AT YOUR** U. S. TIRE DISTRIBUTOR'S -SEE HIM TODAY!





**ED STATES RUBBER COMPANY** 

## Present Day Practice in Belt Fastening

Every man who has anything to do with the purchase, application or maintenance of conveyor, transmission or V-belts will find the bulletins listed below of considerable value in connection with belt fastening work. A knowledge of present day practice in belt fastening helps reduce the loss in machine hours due to belt failures caused by the use of the wrong type of fastener or improper application. We shall be glad to send any or all of them to you or to any of the men in your organization.



FLEXCO HD Belt Festewers are used to make a "water-tight" butt joint in conveyor belts ranging from  $V_4$ " to  $1V_2$ " thick and of any width. The view on the right shows the various types of rips and patches that can be made with these fasteners and Flexco HD Rip Plates.

Bulletin F-100 gives complete details on how to fasten and repair conveyor belts.



ALLIGATOR Y-Belt Fusteners are now being widely used to fasten B, C and D, openend V-belting of cross woven fabric core construction now being made by most belting manufacturers. The view at the left shows a typical application of these fasteners to a drive where endless V-belts would require dismantling the machinery to put the belts on the sheaves,

Bulletin V-205 gives complete instructions on how to use V-belt fasteners.

FLEX V Fasteners for A and B belts are also available for lighter duty V-belt drives. Ask for Bulletin V-14.



ALLIGATOR Steel Belt Leeing is in worldwide use to make smooth, flexible joints in leather, rubber, balata, stitched canvas or solid woven belts up to 36" thick and as wide as they come.

Bulletin A-60 tells how to fasten and repair transmission belts.

Sold by Supply Houses Everywhere

FLEXIBLE STEEL LACING COMPANY
4697 Lexington Street, Chicago 44, III.

Detroit, Mich.—Monsanto Chemical Co., Phosphate Division, St. Louis, 4, Mo., announces the appointment of Robert H. Baugh as assistant branch manager.

New York, N. Y.—Monsanto Chemical Co., St. Louis, 4, Mo., announces the appointment of Edwin L. Hobson as assistant branch manager of the New York office of the company's plastics division, 30 · Rockefeller Plaza.

Pittsburgh, Pa.—Union Steel Castings, Division of Blaw-Knox Company, announces the appointment of Robert A.



Wahl as sales manager. Mr. Wahl has been with the company since 1937, having served in a number of purchasing and sales capacities.

Grand Ropids, Mich.—Blackmer Pump Co., announces the appointment of Arthur E. Jacobs as vice-president and sales manager.

Washington, D. C.—Westinghouse Electric Corp., Pittsburgh, Pa., announces the appointment of Richard M. Wilson as manager.

Wichita, Kansas-Bemis Bro. Bag Co., St. Louis, Mo., announces the transfer



of John O. Frahm from Oklahoma City to Wichita, Kansas, where he will serve the southern Kansas territory.

Seattle area—Ellinwood Industries, Los Angeles, Calif., farm equipment and engines, aircraft, marine and electronic products, announces the appointment of Harry Dallas as resident engineering manager.

Chicago, III. — Westinghouse Electric Corp., Pittsburgh, Pa., announces the appointment of Eugene N. Foss, 2nd., as manager of the company's Northwestern district. Mr. Foss succeeds Fred Herlan who will soon retire.





## ahead with Weatherhead

If IT WERE POSSIBLE, we would like to have all our customers and prospective customers visit us here in Cleveland and make a tour of our fine modern home plant . . . to see how we go about serving thousands of customers representing more than a dozen different industries—with hundreds of different original equipment and replacement parts.

Many of our customers have marvelled at the variety of parts that we produce. They don't quite understand how we go about designing and selecting a product for manufacture . . . how we produce such a tremendous volume with laboratory precision,

Just say "when" and we'll take you into our confidence . . . give you the answers to these and many other questions that will be of interest to you. Ask for your copy of the handsome new booklet, now coming off the press, entitled, "Prospecting for Perfection". It's yours for the asking.

Look Abead with

## Weatherhead

THE WEATHERHEAD COMPANY, CLEVELAND 8, OHIO

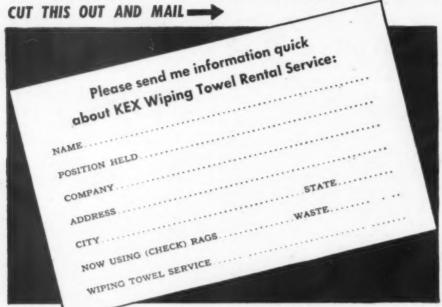


NEW YORK . DETROIT . CHICAGO . ST. LOUIS . ATLANTA . DALLAS . LOS ANGELES

### **Weatherhead Products Include:**

Power Brake Units • Jet Fuel Control Valves • Liquefied Petroleum Gas Regulators • Relief Valves • Flexible Hose Assemblies • Tube Fittings • Refrigeration Dehydrators

## To cut your WIPING TOWEL COSTS





Tear out and mail this coupon today to Kex National Service, 295 Fifth Avenue, New York 16, N. Y.

Learn as fast as you can about KEX quality Wiping Towels. How every square inch of them is usable wiping space—right out to the very edge. They are the kind of soft Wiping Towels you can use without fear of marring the most delicate surfaces. They have no buttons, hooks, hard seams or possible ingrained grit that make non-

descript rags and waste so hazardous to use. In other words, KEX Industrial Wiping Towels are manufactured for the very purpose to which you will put them... and are not cast-offs that have served, and outlived, their purpose.

KEX Wiping Towels absorb up to six times their weight in grease and oil—and give you hundreds of more wipes per pound than make-shift rags or waste.

They are uniform in size and fabric; over-edged to prevent fraying, and are delivered to your plant after they have been cleaned by a special high-heat process—in any quantity desired, as often as necessary.

Get the facts today! There's nothing to buy, no expensive inventory—just a low monthly rental. The very first month should show you considerable saving on wiping costs.



### INDUSTRIAL DEVELOPMENTS

Pennsylvania Solt Mfg. Co. Philadelphia, Pa. H. L. Crowder, traffic manager since 1918, has retired after almost 30 years with the company. He is succeeded by J. G. Robison. William J. Robb has been named assistant traffic manager.

Notional Radiator Co., Johnstown, Pa., has bought the Pullman-Standard Car Co. plant at Middletown, Pa. Plant will fabricate steel boilers, pressure vessels, heat exchangers and other industrial products formerly made at the company's Lebanon plant.

General Box Co., Chicago, Ill., J. F. Ferguson has been elected vice-president. Formerly of the Kansas City territory,



J. F. Ferguson

Mr. Ferguson recently moved to the Chicago home office to assume management of sales. W. C. Embry, elected vice-president will continue as general manager of the Company's Louisville plant. D. B. Forrester, manager of the Natchez, Miss., plant has also been elected vice-president.

Electric Storage Battery Co., Philodelphia, Pa., has purchased a Chicago war plant for \$1,000,000 from the W.A.A. The property, approximately seven acres with 183,000 sq. ft. of buildings located at 5335 So. Western Ave. Boulevard, will be converted into a plant for manufacturing Exide batteries.

American Brakeblok Div. of American Brake Shoe Co. has announced acquisition of 40 acres of land in Winchester, Va., on which company will erect a new plant to produce A-B-K Safety Tile and supplement the line of American Brakeblok friction materials. The new building is the third to be erected under the division's expansion program.

General Electric, Schenectody, N.Y., announces establishment of the Aviation Divisions of the General Electric Co., formerly sections of the Apparatus Department's Industrial Divisions. John C. Miller has been appointed manager of the Aviation Divisions, with Edward G. Haven assistant manager in charge of application engineering. The new Aviation Divisions will comprise two sec-

## NOW YOU CAN REALLY

### SURPLUS MACHINE TOOLS



(AVERAGE)

### BELOW MARKET

New "Fixed-Price" Policy opplies to 31 Important Types of General Production Tools.

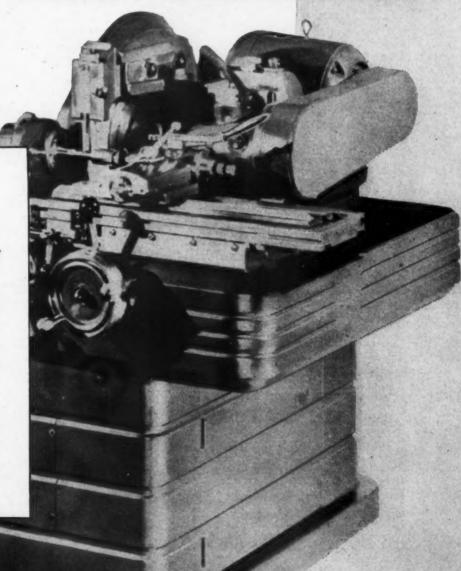
Purchasing can be done either directly with the 33 W.A.A. Regional Offices or with any of more than 3000 "approved" dealers.

One low price everywhere, any office, dealer, or site sale.

No waiting for priorities, com-

plicated figuring of prices or other delays.

Check the next pages for details of this new high-speed sales program.





#### BORING MACHINE - HORIZONTAL, PRECISION, BRIDGE TYPE, SINGLE END

facturer: EX-CELL-O CORPORATION, DETROIT, MICH.

MODEL	SIZE AND CAPACITY	SALES PRICE
2112-A Single End	6" diameter bore, x 12" table travel	\$ 720.00
2112-A Single End	6" diameter bore, x 15" table travel	655.00
112-C Single End	8" diameter bore, x 16" table travel	1036.00
112-C Single End	8" diameter bere, x 20" table travel	1139.00
Manufacturer: THE HEALD MAC	HINE COMPANY, WORCESTER, MASS	i.e.
45 Bore-Matic, Standard, Single End	12" diameter bere, x 16" table travel	1 \$ 1993.00
46-8 Bore-Matic, Standard, Single End	9" diameter bore, x 14" table travel	1451.00
17-A Bore-Matic, Standard, Single End	9" diameter bore, x 13-5/8" table travel	1178.00
17-A Bore-Matic, Special, Single End	9" diameter boro, x 15" table travel	1186.0
18 Bore-Matic, Single End	6" diameter bore, x 9" table travel	714.0
48-A Bore-Matic, Single End	6 <sup>n</sup> diameter bore, x 12 <sup>n</sup> table travel	714.0
49 Bore-Matic, Standard, Single End	6" diameter bere, x 12" table travel	1116.0
Manufacturer: STOKERUNIT CO	PORATION, MILWAUKEE, WIS.	
Med. 1 Herizental Single End	4" diameter bore, x 3" table travel	354.0
Med. 2-B Herizental, Single End	8" diameter bere, x 15" table travel	444.0



DRILL PRESS - FLOOR TYPE SINGLE OR MULTIPLE SPINDLE (EXCEPT 110 VOLT, SINGLE PHASE)

Monufacturar: ALLEN-CHARLES C. ALLEN CO., BARRE, MASS.

MODEL	SIZE AND CAPACITY	SALES PRICE
HMD — Super Speed (Floor HMD — Super Speed (Floor)	5/16" drill capacity, 16" swing, 3 spindle 5/16" drill capacity, 16" swing, 4 spindle	\$ 511.00 657.00
HMD Super Speed (Fleer) HMD Super Speed (Fleer) HMD Super Speed (Fleer) HMD Super Speed (Fleer)	5/16" drill capacity, 16" swing, 6 spindle 5/16" drill capacity, 24" swing, 1 spindle 5/16" drill capacity, 24" swing, 2 spindle 5/16" drill capacity, 24" swing, 3 spindle	\$ 948.00 229.00 382.00 535.00

2-1/2 MSV (Fleer) 3-1/2 MSV (Fleer)	1-1/8" drill capacity, 16" swing, 2 spindle 1-1/8" drill capacity, 10" swing, 6 spindle 1-1/8" drill capacity, 10" swing, 6 spindle 1-1/8" drill capacity, 24" swing, 1 spindle 1-1/8" drill capacity, 24" swing, 2 spindle 1-1/8" drill capacity, 24" swing, 2 spindle 1-1/8" drill capacity, 24" swing, 5 spindle 1-1/4" drill capacity, 24" swing, 1 spindle 1-1/4" drill capacity, 24" swing, 2 spindle 1-1/4" drill capacity, 24" swing, 3 spindle 1-1/4" drill capacity, 24" swing, 3 spindle	\$ 449.00 810.00 1171.00 281.00 469.00 845.00 1033.00 268.00 449.00 632.00
Manufacturer: AVEY DRILLING MA	CHINE CO., CINCINNATI, OHIO	
1-MA-6 Floor, Box Column 2-MA-6 Floor, Box Column	1/2" drill capacity, 15" swing, 1 spindle 7/8" drill capacity, 15" swing, 1 spindle	\$ 175.00 243.00
2-MA-8 Floor, Box Column 2-MA-8 Floor, Box Column 2-MA-8 Floor, Box Column 2-MA-8 Floor, Box Column 2-MA-8 Floor, Box Column	7/8" drill capacity, 15" swing, 2 spindle 7/8" drill capacity, 15" swing, 3 spindle 7/8" drill capacity, 15" swing, 4 spindle 7/8" drill capacity, 24" swing, 4 spindle 7/8" drill capacity, 24" swing, 5 spindle	\$ 448.00 652.00 856.00 710.00 877.00
2-MA-S Floor, Box Column 2-MA-S Floor, Box Column Ne. 3 Beltad, Floor, Box Column 3-MA-S Floor, Box Column 3-MA-S Floor, Box Column	7/8" drill capacity, 24" swing, 6 spindle 7/8" drill capacity, 30" swing, 3 spindle 1" drill capacity, 24" swing, 1 spindle 1-1/8" drill capacity, 24" swing, 6 spindle 1-1/4" drill capacity, 24" swing, 1 spindle	\$ 1044.00 729.00 249.00 2122.00 390.00
3-MA-6 Floor, Bex Column 3-MA-6 Floor, Bex Column 3-BMA-1 Floor, Bex Column 3-BMA-1 Floor, Bex Column No. 3 Standard Floor, Bex Column No. 3 Standard Floor, Bex Column	1-1/4" drill capacity, 24" swing, 3 spindle 1-1/4" drill capacity, 24" swing, 6 spindle 1-1/4" drill capacity, 24" swing, 1 spindle 1-1/4" drill capacity, 24" swing, 3 spindle 1-1/4" drill capacity, 24" swing, 3 spindle 1-1/4" drill capacity, 24" swing, 3 spindle	\$ 1083.00 2122.00 279.00 754.00 614.00 791.00
Manufacturer: BUFFALO FORGE C Model 14 Pedestal, Bax Column, "High-Speed Model 2, Floer, Bax Column, "Motor Spindle" Model 2 Floer, Bex Column, "Motor Spindle"		\$ 120.00 243.00 266.00

Mod. Mod. Mod. Mod.

No. 4 F No. 4 F No. 4 F

No. 1-

No. 1-No. 1-No. 1-No. 1-No. 1-

No. 1-No. 1-No. 2-No. 2-No. 2-

No. 2 No. 2 No. 2 No. 2 No. 2

Mod Mai

\$ 172.00

just look at these typical

			Manufacturer: EDLUND MACHI	NERY CO., INC., CORTLAND, N. Y.	
2-KH (Floer)	5/8" drill capacity, 14" swing, 1 spindle	\$ 177.00	1-B-7" Floor Type	3/8" drill capacity, 14" swing, 1 spindle	\$ 140.00
2-KH (Floer)	5/8" drill capacity, 14" swing, 2 spindle	279.00		3/8" drill capacity, 14" swing, 2 spindle	239.00
2-KH (Floer)	5/8" drill capacity, 14" swing, 3 spindle	381.00		3/8" drill capacity, 14" swing, 3 spindle	330.00
2-KH (Floer)	5/8" drill capacity, 14" swing, 4 spindle	483.00		3/8" drill capacity, 14" swing, 4 spindle	391.00
2-KH (Floer)	5/8" drill capacity, 14" swing, 6 spindle	687.00		3/8" drill capacity, 14" swing, 6 spindle	604.00
2-KH (Floer)	5/8" drill capacity, 24" swing, 1 spindle	\$ 185.00	1-B-12" Floor Type	3/8" drill capacity, 24" swing, 1 spindle	\$ 152.00
2-KH (Floer)	5/8" drill capacity, 24" swing, 2 spindle	295.00	1-B-12" Floor Type	3/8" drill capacity, 24" swing, 3 spindle	348.00
2-KH (Floer)	5/8" drill capacity, 24" swing, 3 spindle	394.00	1-B-12" Floor Type	3/8" drill capacity, 24" swing, 4 spindle	411.00
2-KH (Floer)	5/8" drill capacity, 24" swing, 4 spindle	513.00	2-B-8 "Floor Type	3/4" drill capacity, 16" swing, 1 spindle	195.00
2-KH (Floer)	5/8" drill capacity, 24" swing, 6 spindle	732.00	2-B-6" Floor Type	3/4" drill capacity, 16" swing, 2 spindle	356.00
2-MSV (Floor) 2-MS (Floor) 2-MS (Floor) 2-MS (Floor) 2-MS (Floor)	7/8" drill capacity, 16" swing, 1 spindle	\$ 240.00	2-B- 8" Floor Type	3/4" drill capacity, 16" swing, 3 spindle	\$ 524.00
	7/8" drill capacity, 16" swing, 2 spindle	449.00	2-B- 8" Floor Type	3/4" drill capacity, 16" swing, 4 spindle	691.00
	7/8" drill capacity, 24" swing, 2 spindle	469.00	2-B- 8" Floor Type	3/4" drill capacity, 16" swing, 6 spindle	1025.00
	7/8" drill capacity, 24" swing, 4 spindle	910.00	3-B-12" Floor Type	3/4" drill capacity, 24" swing, 1 spindle	208.00
	7/8" drill capacity, 30" swing, 3 spindle	718.00	3-B-12" Floor Type	3/4" drill capacity, 24" swing, 2 spindle	378.00
2-V Betted (Floor)	7/8" drill capacity, 16" swing, 1 spindle	\$ 184.00	3-B-12" Floor Type 3-B-12" Floor Type 3-B-12" Floor Type 2-M5-12" Floor Type 4-B-12" Floor Type	3/4" drill capacity, 24" swing, 3 spindle	\$ 588.00
2-V Betted (Floor)	7/8" drill capacity, 16" swing, 2 spindle	266.00		3/4" drill capacity, 24" swing, 4 spindle	775.00
2-V Betted (Floor)	7/8" drill capacity, 16" swing, 4 spindle	440.00		3/4" drill capacity, 24" swing, 6 spindle	1019.00
2-V Betted (Floor)	7/8" drill capacity, 24" swing, 3 spindle	382.00		3/4" drill capacity, 30" swing, 2 spindle	468.00
2-V Betted (Floor)	7/8" drill capacity, 30" swing, 1 spindle	196.00		1" drill capacity, 24" swing, 1 spindle	293.00



### **CHECK THIS** COMPLETE LIST

If tools of the type you need are included send today for WAA's catalog giving all sizes and models together with the fixed prices for purchases made anywhere in the U. S. Simply write, wire or phone the nearest WAA office listed on the 4th page of this advertisement.

Boring Machine—Horizontal, Precision, Bridge Type, Single and Double End Chucking Machine—Automatic, Vertical, Multiple Spindle Type Chucking Machine—Single Spindle Auto-matic, Horizontal Turret Type Machine Chucking Machine

Chucking Machine—Six Spindle Automatic, Horizontal

Drilling Machine or Drill Press—Bench or Floor, Single or Multiple Spindle Gear Cutting Machine for Straight Bevel Gears, (Not Planer Type)

Gear Hobber—Horizontal
Gear Hobber—Vertical, Universal Gear Shaper—For External Spur Gears Only Gear Shaper—For Spur Gears, External or Internal

Gear Shaper—For Spur and Helical Gears, External and Internal Gear Tooth Shaver—For External and In-ternal Gears (Rotary Type Machine) Gear Tooth Grinder—Generating Type, for Spur and Helical Gears

Gear Tooth Grinder—For Spur Gears, External and Internal (Formed Wheel Type Machine) Grinders—Centerless Grinder—Crank Pin Grinders

Grinders-Plain External Cylindrical Grinder

Grinder—Internal, Cylindrical, Automatic Sizing

Grinder—Internal Cylindrical (Hydraulic Feed Machine)

Grinder—Internal Cylindrical, Hydraulic Feed, for Hole and Face Grinding. Grinder—Surface, Rotary Table Type Lathe—Multiple Tool, Not Automatic, Manufacturing Type Production Lathe

Milling Machine—Automatic and Manufacturing Knee Type Milling Machine—Plain Bed Type, Horizontal Spindle Machines

Milling Machine—Vertical, Knee Type (Not Including Bench Type) Polishing and Buffing Machine-Bench and Floor

Profiling Machine—Vertical, Fixed Bed Type, Single and Multiple Spindle Tapping Machine—Vertical, Single or Multiple Spindle Thread Grinding Machines

Thread Milling Machine Turret Lathe-Ram Type, Plain and Universal

ALL TOOLS SUBJECT TO PRIOR SALE

Manufacturer: FOOTE-BURT CO	MPANY, CLEVELAND, OHIO	
Med. DE-1 Floor, Box Column	3/16" drill capacity, 14" swing, 1 spindle	\$ 127.00
Med. 2 Floor, Box Column	7/8" drill capacity, 16" swing, 1 spindle	147.00
Med. 2 Floor, Box Column	7/8" drill capacity, 16" swing, 2 spindle	255.00
Mod. 2 Floor, Box Column	7/8" drill capacity, 16" swing, 6 spindle	\$ 706.00
Mod. 2 Floor, Box Column	7/8" drill capacity, 24" swing, 1 spindle	156.00
Mod. 2 Floor, Box Column	7/8" drill capacity, 24" swing, 2 spindle	274.00
Mod. 2 Floor, Box Column	7/8" drill capacity, 24" swing, 3 spindle	\$ 391.00
Mod. 2 Floor, Box Column	7/8" drill capacity, 24" swing, 4 spindle	510.00
Mod. 2 Floor, Box Column	7/8" drill capacity, 24" swing, 6 spindle	745.00
Med. 3 Fleer, Box Column	1-1/4" drill capacity, 24" swing, 1 spindle	\$ 279.00
Manufacturer: THE FOSDICK M.	ACHINE TOOL CO., CINCINNATI, OHIO	
No. 4 Floor, Box Column	7/8" drill capacity, 24" swing, 1 spindle	\$ 255.00
No. 4 Floor, Box Column	7/8" drill capacity, 24" swing, 3 spindle	601.00
No. 4 Floor, Box Column	7/8" drill capacity, 24" swing, 4 spindle	793.00
No. 4 B. M. Floor, Box Column	1" drill capacity, 16" swing, 1 spindle	\$ 293.00
No. 4 B. M. Floor, Box Column	1" drill capacity, 16" swing, 2 spindle	293.00
No. 4 B. M. Floor, Box Column	1" drill capacity, 24" swing, 1 spindle	307.00
No. 4 B. M. Floor, Box Column	1" drill capacity, 24" swing, 4 spindle	1009.00
No. 5 B. M. Floor, Box Column	1-1/2" drill capacity, 24" swing, 1 spindle	\$ 722.00
No. 5 B. M. Floor, Box Column	1-1/2" drill capacity, 24" swing, 2 spindle	790.00
No. 5 B. M. Floor, Box Column	1-1/2" drill capacity, 24" swing, 6 spindle	2219.00

49.00 71.00 81.00 69.00 45.00 33.00 68.00 49.00

75.00 243.00

148.00 552.00 856.00 710.00 877.00

044.00 729.00 249.00 122.00 390.00

083.00 122.00 279.00 754.00 614.00 791.00

120.00 243.00 266.00

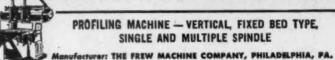
172.00

140.00 239.00 330.00 391.00 604.00

152.00 348.00 411.00 195.00 356.00

524.00 691.00 025.00 208.00 378.00

588.00 775.00 1019.00 468.00 293.00



SIZE SALES PRICE MODEL AND DESCRIPTION 24" x 36" table size \$ 793.00 No. 6-A Single Spindle



4	19 191	
Manufacturer: MOREY MACHINS	RY COMPANY, INC., NEW YORK	, N. Y.
No. 12-M Single Spindle No. 12-M Two Spindle	23" table travel 23" table travel	\$ 705.00 742.00
Manufacturer: PRATT AND WH	THEY DIVISION, HARTFORD, CO	DNN.
No. M-1893 Single Spindle, No. 12-B No. M-1693 Two Spindle, No. 12-B No. M-1482 Single Spindle	20" table travel 20" table travel 32" table travel	\$ 731.00 844.00 1675.00



\$ 155.00

### GEAR TOOTH GRINDER - GENERATING TYPE, FOR SPUR AND HELICAL GEARS

facturer: THE FELLOWS GEAR SHAPER CO., SPRINGFIELD, VT.

MODEL AND DESCRIPTION	SIZE AND CAPACITY	SALES PRICE
No. 12 Spur and Helical, External only	12" pitch diameter x 1-1/2" face width	\$ 1117.00
Manufacturer: PRATT AND WHI M-1635 Spur M-1639 Helical M-1679 Helical, Two Wheel M-1838 Helical	TNEY DIVISION, HARTFORD, CONN.  10- 1/4" pitch diameter x 5" face width 10-11/16" pitch diameter x 6" face width 10-11/16" pitch diameter x 1-1/4" face width 18- 1/2" pitch diameter x 8" face width	\$ 1791.00 2528.00 3300.00 4292.00



Sales to priority claimants, which include Federal Agencies, Certified Veterans, World War II, and subsequent priority claimants, will be made in proper sequence as required by law.

Exporters: Your business is solicited. If sales are conducted at various levels, you will be considered as a wholesaler. Any inquiries regarding export control should be referred to Office of International Trade, Department of Commerce, Washington, D. C.

Munufacturer: LELAND GIFFORD	COMPANY, WORCESTER, MASS.	
No. 1-LMS Floor, Motor Spindle	3/8" drill capacity, 12" swing, 1 spindle	\$ 156.00
No. 1-LMS Floor, Motor Spindle	3/8" drill capacity, 12" swing, 2 spindle	274.00
No. 1-LMS Floor, Motor Spindle	3/8" drill capacity, 12" swing, 3 spindle	414.00
No. 1-LMS Bench, Motor Spindle	3/8" drill capacity, 20" swing, 1 spindle	147.00
No. 1-LMS Bench, Motor Spindle	3/8" drill capacity, 20" swing, 4 spindle	527.00
No. 1-LMS Floor, Motor Spindle	3/8" arill capacity, 20" swing, 1 spindle	168.00
No. 1-LMS Floor, Motor Spindle	3/8" drill capacity, 20" swing, 2 spindle	\$ 308.00
No. 1-LMS Floor, Motor Spindle	3/8" drill capacity, 20" swing, 3 spindle	449.00
No. 2-LMS Floor, Motor Spindle	7/8" drill capacity, 14" swing, 1 spindle	275.00
No. 2-LMS Floor, Motor Spindle	7/8" drill capacity, 14" swing, 2 spindle	475.00
No. 2-LMS Floor, Motor Spindle	7/8" drill capacity, 14" swing, 3 spindle	691.00
No. 2-LMS Floor, Motor Spindle	7/8" drill capacity, 14" swing, 4 spindle	\$ 907.00
No. 2-LMS Floor, Mater Spindle	7/8" drill capacity, 14" swing, 5 spindle	1109.00
No. 2-LMS Floor, Motor Spinele	7/8" drill capacity, 14" swing, 6 spindle	1312.00
No. 2-LMS Floor, Motor Spindle	7/8" drill capacity, 20" swing, 1 spindle	285.00
No. 2-LMS Floor, Motor Spindle	7/8" drill capacity, 20" swing, 2 spindle	491.00
No. 2-LMS Floor, Motor Spindle	7/8" drill capacity, 20" swing, 3 spindle	\$ 714.00
No. 2-LMS Floor, Motor Spindle	7/8" drill capacity, 20" swing, 4 spindle	935.00
No. 2-LMS Floor, Motor Spindle	7/8" drill capacity, 20" swing, 6 spindle	1349.00
No. 2-LMS Floor, Mater Spinelle	7/8" drill capacity, 26" swing, 1 spindle	297.00
No. 2-LMS Floor, Motor Spindle	7/8" drill capacity, 26" swing, 2 spindle	514.00
No. 2-LMS Floor, Motor Spindle	7/8" drill capacity, 26" swing, 3 spindle	\$ 751.00
No. 2-LMS Floor, Motor Spindle	7/8" drill capacity, 26" swing, 4 spindle	984.00
No. 2-LMS Floor, Motor Spindle	7/8" drill capacity, 26" swing, 5 spindle	1206.00
No. 2-LMS Floor, Motor Spindle	7/8" drill capacity, 26" swing, 6 spindle	1426.00
No. 3-MS Floor, Motor Spindle	1" drill-capacity, 24" swing, 1 spindle	\$ 427.00
No. 3-MS Floor, Meter Spindle	1" drill capacity, 24" swing, 2 spindle	780.00
No. 3-MS Floor, Motor Spindle	1" drill capacity, 24" swing, 3 spindle	1154,00
Manufacturer: THE TAYLOR AND	FENN COMPANY, HARTFORD, CON	N.
Mod. S Floor, Bex Column	3/8" drill capacity, 16" swing, 6 spindle	1 \$ 477.00
Manufacturer: THE TOLEDO GENI	IRAL MFG. CO., TOLEDO, OHIO	



Model KTV Floor, Box Column

#### GRINDER - INTERNAL CYLINDRICAL, (HYDRAULIC FEED MACHINE)

7/8" drill capacity, 24" swing, 4 spindle

sufacturer: BRYANT CHUCKING GRINDER CO., SPRINGFIELD, VT.

MODEL AND DESCRIPTION	SIZE AND CAPACITY	SALES PRICE
Model 16-16 Internal Grinder, Hydraulic Feed	16" swing x 13" strake	\$1475.00
Model 16-22 Internal Grinder, Hydraulic Feed	22" swing x 13" stroke	1668.00
Model 16C-16 Internal Grinder, Hydraulic Feed	16" swing x 13" stroke	1647.00
Medel 16F-28 Internal Grinder, Hydraulic Feed	28" swing x 13" straka	\$1766.00
Model 24-26 Internal Grinder, Hydraulic Feed	26" swing x 16" stroke	2051.00
Model 24-36 Internal Grinder, Hydraulic Feed	36" swing x 16" stroke	2427.00
Model 24L-26 Internal Grinder, Hydraulic Food	25" swing x 24" stroke	\$2589.00
Model 112M Internal Grinder, Hydraulic Feed	16" swing x 9" srroke	2292.00
Model 16-38 Internal Grinder, Gap Bed	38" swing x 9" stroke	1800.00
Manufacturer: THE HEALD MACHINE	COMPANY, WORCESTER, MASS	
Model 81 Plain Chucker, Internal Grinder, Hydrau		\$1122.00
Medel 72-A-3 Plain Chucker, Internal Grinder, Hy		
Model 72-A-5 Plain Chucker, Internal Grinder, Hy		
Model 74 Plain Chucker, Internal Grinder, Hydra		\$1940.00
Model 172, Gap, Plain, Internal Grinder, Hydraulie	Food 36" swing x 13" stroke	1778.00

## ... and no priorities needed

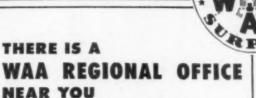
To make purchases visit any of the W.A.A. offices listed below; your regular machine tool dealer, or any W.A.A. Machine Tool Site Sale advertised in your local paper. You can arrange on the spot for immediate purchase. Remember, however, that the particular machine you want may be located elsewhere and shipping times these days are still uncertain. But you will not have to wait for lengthy clearances of priorities on nation-wide search of stocks. The machines are available for immediate sale.



### W.A.A. announced last month its important New Price Policy on 31 types of General Production Tools.

But just as a reminder here is how W.A.A.'s new price has been set for a typical machine; Model 2K Kearney and Trecker Milling Machine, vertical knee type; W.A.A. S.C. Code 3417-23-20-28.

Price (New)				*			\$7,054.00
Previous W.A.A. Sales Price (based on depreciation primarily)						4,091.00	
on depreciation primar	HY/						4,071.00
Average Market Value	*						2,556.00
New W.A.A. Sales Price			*	*	*		2,045.00
Available for rebuilding							511.00



(starred offices have the longest and most complete inventories of surplus machine tools—but stocks are extensive in all offices. Watch your newspaper for special machine tool sales in your area).

### Offices located at:

Atlanta Birmingham \*BOSTON Charletto \*CHICAGO Cincinneti \*CLEVELAND Dellas Benver \*PETROIT

Heuston
Jacksenvillo
Kansas City, Mi
Little Rock
Los Angeles
Louisville
Minneapolis
Nashville
Nashville

Omehe
"PHILADELPHIA
Portland, Ore.
Richmond
Selt Lake City
"ST. LOUIS
San Antenie
San Francisco
Seattle
Spokene
Tules

## MACHINE TOOL SALES DIVISION

686-2

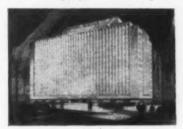


tions: the Aircrait Accessories and Ordnance Division at Schenectady, with Robert A. Averitt as manager; and the Aircraft Gas Turbine Division at the G-E River Works, Lynn, Mass., with E. S. Thompson as manager.

Pittsburgh Plate Gloss Co., Pittsburgh, Pa., has purchased the Morck Brush Mig. Co., of San Francisco, manufacturer of painters and master painters' tools. Company will continue operation as the Morck Brush Division of the Pittsburgh Plate Glass Co.

Durez Plastics and Chemicals, Inc. North Tonowonda, N.Y. announces its Oil Soluble Resin Division has been renamed Protective Coating Resins Division, and its Technical Sales Division renamed Industrial Resins Division. J. F. Ortner will cover Metropolitan N.Y., Northern N.J., and New England, and M. J. Dubenitz will cover Southern N.J., Southern Pa., Delaware and Maryland as sales engineers in the Industrial Resins Div.

General Petroleum Corp., Los Angeles, Colif., western subsidiary of Socony-Vacuum Oil Company, announces plans for



New home of General Petroleum Corp.

the construction of a \$5,000,000 twelvestory office building on the east side of Flower Street between Sixth Street and Wiltshire Ave., in Los Angeles.

E. l. Du Pont de Nemours, Wilmington, Del., announces plans to enlarge its synthetic detergent ("soapless soaps") plant at Deepwater, N.J. The C.P.A. has approved approximately \$600,000 of new construction.

Westinghouse Electric Corp., York, Pa. office: C. D. Kester, previously manager of the machinery electrification section for the Philadelphia district office, has been named manager of the district. Mr. Kester succeeds E. M. Powell, who has been machinery electrification manager.

Sheet Metal Specialty Co., Pittsburgh, Pa. sudsidiary of the Follansbee Steel Corp., has been merged with the latter and will be known as the Sheet Metal Specialty Division of Follansbee.

686-2

Follansbee Metal Warehouse, a division of Follansbee Steel Corp., has purchased the steel warehouse facilities of Williamson Brothers Co., Fairfield, Conn. Shearing equipment for both square and coil slitting will be installed in addition to cutting and burning facilities.

(Please turn to page 280)



### GIANT LIFTRUCKS



RED GIANTS are made single, double and multiple stroke hydraulic, with capacities up to 15,000 lbs. Timken bearings on all models.

## REVOLVATOR PORTABLE ELEVATORS

27 Standard Models, hand, electric or combination, revolvable or non-revolvable base, hinged or telescopic top, platforms for all types of material. Send for bulletins.

## OUICK EFFICIENT

Whether or not you require heavy and expensive power trucks for major moving operations, you need RED GIANT hand liftrucks every day. For loading and unloading jobs, for

horizontal moving in crowded quarters or on light floors these sturdy, dependable machines are indispensable. Some plants have dozens in use. All of them save time, labor and money.

VOLVAT DESIGNERS AND MANUFACTURERS OF MATERIAL HANDLING EQUIPMENT

8752 Tonnele Ave.

NORTH BERGEN, N. J.

**Since 1904** 

## Stop Rust...and Save with RUST-OLEUM

Rust-Oleum slashes maintenance costs 3 ways. It's enduring protective coating seals metal against rust-forming elements. Nothing equals it as a positive, low-cost rust preventive!

> 1. IT CUTS PREPARATION TIME! No sandblasting or chemical cleaners are necessary. Quick wirebrushing removes paint scale, blisters, dirt. etc.

2. IT GOES ON FASTER! Rust-Oleum saves 25% of the time ordinarily required for application and covers 30% more area than ordinary materials.

3. IT PROTECTS LONGER! Rust-Oleum outlasts ordinary paint two to ten times, depending upon conditions under which it is used. This means maximum savings on every application.

FREE: New Rust-Oleum catalog

USTOLEU

RUST PREVENTIVE

RUST-OLEUM CORPORATION
2439 Oakton Street, Evanston, Illinois

Brown Instrument Company, Philadelphia, Pa., announces addition of 45 sales and service engineers to its field staff. The new men will be assigned around the first of the year to various offices and branches throughout the country.

B. F. Goodrich Chemical Co., Cleveland, Ohio, has entered into the biochemical field, and Sever L. Hopperstead has been appointed service engineer to supervise the development and field work for the new biochemical products.

Electric Auto-Lite Company, Toledo, Ohio, producer of moulded plastics, die castings, deep drawn stampings and automotive electrical equipment, operates twenty-six plants extending from coast-to-coast in 20 cities in the U.S. and Canada.

Sylvania Electric Products Inc., Salem, Mass., has announced the appointment of Jerome R. Steen as director of quality control



J. R. Steen

for the company's Lamp, Fixture, Wire Products, Tungsten and Chemicals, Radio Tube and Electronic Divisions. As such he will be responsible for functional supervision of all quality control personnel within the company.

Worcester Moulded Plastics Company, Worcester, Mass., announces acquisition of a two-story adjacent building, providing an additional forty per cent square feet of space. Expansion includes addition of 150 new employees in the die shop, moulding and finishing departments.

New York Belting & Packing Co., Passaic, N. J., is celebrating its 100th anniversary. It was in 1846, seven years after rubber was first vulcanized, that a group of pioneers established a small factory in Sandy Hook, Conn. This enterprise prospered, and on June 15, 1856, it was incorporated in Connecticut by William Judson, John H. Cheever and A. W. Thompson as the New York Belting & Packing Co. In 1882 an additional plant was established in Passaic, N. J. Eight years later all manufacturing was moved to Passaic and the Sandy Hook plant discontinued.

Westinghouse Electric Supply Co., Pittsburgh, Pa., announces the purchase of the wholesale electrical supply branch of the Barnes and Brass Electric Co., Clarksburg, W. Va. Earl L. Charles, who had been employed by the Clarksburg firm for the past 16 years, has been named manager.

(Please turn to page 282)



## NEW AND BETTER WAYS OF POWER TRANSMISSION

There are new ways to put more power on the job. Get the facts. Save time for your engi-

neering and production executives. Ask the Dodge Transmissioneer to tell you about the latest developments by Dodge of Mishawaka. The Transmissioneer is your local Dodge distributor, listed in the classified telephone directory under "Power Transmission Equipment."

DODGE MANUFACTURING CORPORATION, MISHAWAKA, INDIANA

NEW AND BETTER!



### DODGE TAPER LOCK BRAND SHEAVE

An entirely new type of taper bushed sheave—the simplest, surest mechanism ever devised for holding wheels to shafts! No flange. No collar. No protruding parts. Mounts as a complete unit. Breaks all speed records in mounting and demounting—saves time and temper.

NEW AND BETTER!



### DODGE ROLLING GRIP FRICTION CLUTCH

No Toggles! Rugged, compact, easy to adjust. Another great achievement of Dodge Transmissioneering... designed to give outstanding flexibility and ease of control without any sacrifice of positive drive... and available at low cost! Sizes ½ H. P. to 20 H. P. at 100 R. P. M.

NEW AND BETTER!

### DODGE Bron Zoil BEARING

Designed especially for exacting requirements of fan and blower service. Capillary bronze bushing has capacity of one-third its volume in oil. Reservoir and wick provide ample lubrication. Fully self-aligning. Neoprene oil resisting grommets available for noise isolation.

DO SIDE SIDE MISHAWAKA

Convright, 1946, Dodge Mfg, Corp.

NAME PLATES

FOR YOUR NAME PLATE REQUIREMENTS, WRITE OUR SUBSIDIARY, ETCHING COMPANY OF AMERICA, 1520 MONTANA STREET, CHICAGO 14, ILLINOIS



### to help solve all your cleaning problems

## 7-Letter Word Meaning: money saved

It's service. Oakite Service, of course. And to our way of thinking, "Oakite Service" is more than a fancy phrase.

It means that when you call in an Oakite Technical Service Representative, you can bank on his first-hand knowledge of in-plant operations to help you streamline your cleaning cycle; eliminate bottlenecks and reduce rejects caused by ineffective production cleaning. Too, it means your Oakite Representative will deliberately go out of his way to reduce a cleaning formula, where possible, to prevent unnecessary waste of a cleaning compound. You see, no matter how it's defined, "Oakite Service" always spells real economy for you!

Call Oakite NOW. That's the best way to get full value for every cleaning dollar you spend! Oakite Products, Inc., 54 Thames St., New York 6, N. Y.

SPECIALIZED CLEANING MATERIALS . METHODS . SERVICE

Technical Representatives in Principal Cities of U. S. & Canada





REGULAR HEIGHT

THIN HEIGHT

### SELF-LOCKING NUTS

CAN YOU BE SURE THAT A PLAIN NUT WON'T SLYLY UNWIND ITSELF? If not, then what you need is the All-metal, One-piece "Flexloc," which is a Self-Locking Nut that won't budge, except when a wrench is used. "Flexloc'" packs maximum usefulness in minimum space because it is rugged, locked, compact — and is therefore, becoming increasingly popular and this applies alike to U.S.S. and S.A.E. thread series.

Every thread - including the locking threads - takes its share of the load.

Covers a wide range of tolerances — from low #1 to high #3. Can be used over and over again without losing much of its locking ability. Being a "stop" nut, it stays locked in any position on a threaded member.

"Flexloc" Thin Nuts are especially popular, because their tensile is so high. Sizes from #6 to 1" in diameter - millions in use!

Convince yourself with a few free samples.

OVER 43 YEARS IN BUSINESS

## STANDARD PRESSED STEEL JENKINTOWN, PENNA, 80% 500 - SRANCHES SOSTON - CHICAGO - DEFROIT - INDIANAPOLIS - ST. LOUIS -

Benjamin Electric Co., Des Plaines, Ill. New Benjamin Electric Laboratory recently dedicated. It embodies many unusual developments such as applications of brick, glass brick, concrete, heat absurbent glass, radiant heating, fluorescent 100 footcandle light, and other unusual factors in visitor reception, and land-

Lovejoy Flexible Coupling Co., Chicago 44, Ill., has acquired manufacture and sales of the mechanical power transmission department of Ideal Industries of Sycamore, Ill.

Manufacturers Machine & Tool Co., Inc., formerly manufacturers of the Norden Bomb Sight, announces moving from 80 Lafayette Street, New York City, to a new plant at 320 Washington Street, Mount Vernon, New York.

General Electric Company, Schenectady, N.Y. has opened a new service shop and warehouse in Baltimore at 920 East Fort Ave., featuring "over-the-counter" service to facilitate selection and purchase



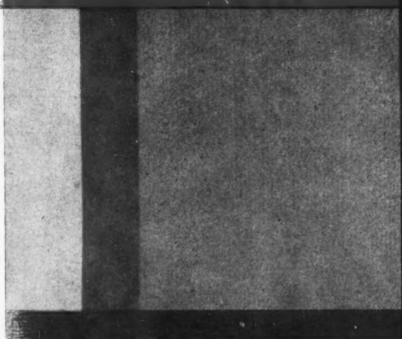
G. E. Company's Denver Service Shop

of replacement parts. The Denver service shop illustrated occupies a new building at 3353 Larimer Street and is equipped with all facilities for complete servicing and maintenance of electrical apparatus. Its service area includes Colorado, Montana, Wyoming, Western S. Dakota, Western Nebraska and Northern New Mexico.

American Foundry Equipment Co., Mishawoke, Indiano, which has operated for 38 years under that title, has changed its name to American Wheelabrator & Equipment Corp., in view of the fact that the company's principal product is the Wheelabrator, used for cleaning and finishing metal products.

Eastern Engineering Company, New Haven, Conn., manufacturers of midget pumps for industrial and laboratory use and of industrial mixing equipment, has been consolidated with Automatic Signal Corp., East Norwalk, Conn., makers of automatic traffic signals and relays. The new corporation is called Eastern Industries, Inc., and will continue to manufacture the same products.

Thornton Tandem Company, Detroit, Mich., manufacturers of special truck equipment, has discontinued its present name and is now operating as Detroit Automotive Products Corp. The manufacture of new products other than the original Thornton tandem drive makes the new name more appropriately descriptive of the business.

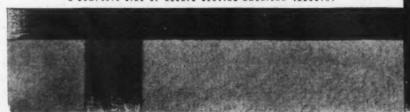


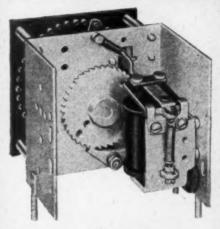
Design engineers are discovering new, efficient, money-saving applications daily for Guardian basic-type Stepping Relays. Typical applications include Automatic Sequence selection of circuits; Automatic Sequence cross connection of circuits; circuit control of Automatic Business Machines; control of Production Totalizing and Conveyor equipment; remote selection of records on Coin Operated Phonographs; Automatic Circuit Selection controlled from a pulsing dial; Automatic Wave Changing on short wave transmitters. This Guardian Stepping Relay is furnished for three basic types of A.C. and D.C. operation: Continuous Rotation—Electrical Reset—Add and Subtract. On each of these types the contact finger rotates in a counter-clockwise direction and all three types are designed to follow 10 pulses per second within the rated voltage range of the relay. Special construction prohibits skipping or improper indexing of the ratchet. Guardian Steppers may be furnished as separate units; in combination with relays, contact switches, solenoids, etc., completely assembled and wired to terminals; mounted on special bases or in enclosures. Any standard Guardian Stepping Relay can be modified to meet practically all "special" stepper control applications where quantities warrant special designing. For complete details write for Bulletin SR.

GUARDIAN GELECTRIC

1635A W. WALNUT STREET CHICAGO 12, ILLINOIS

A COMPLETE LINE OF RELAYS SERVING AMERICAN INDUSTRY





**GUARDIAN SERIES R** 

Continuous Rotation
In this type the contact finger advances one step each time the circuit is made and broken. Weight approximately 20½, ozs.

2 Electrical Reset
Resets when a second coil is energized.
Weight approximately 23 ounces.

3 Add and Subtract Steps back one or more contacts at a time instead of resetting completely. Weight approximately 281/2 ounces.

TYPICAL GUARDIAN UNITS AVAILABLE IN COMBINATION WITH GUARDIAN STEPPERS



Series 100 Snap-Action Relay

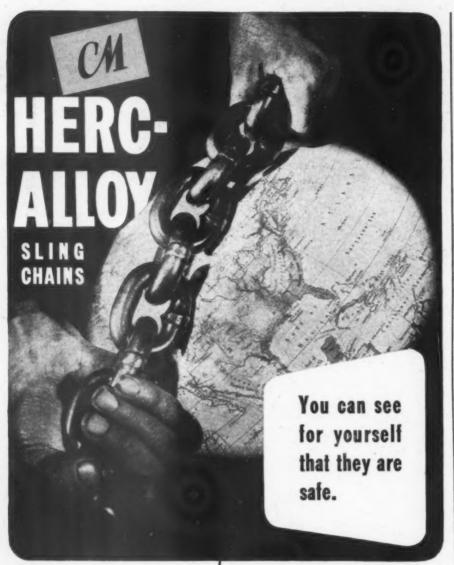




Series 500 Midget Relay



Series I-A Solenoid



● Just one of the big advantages of HERC-ALLOY Sling Chains is that you can determine their serviceability by a simple visual inspection.\* Ordinary steel or iron chains, on the contrary, grow dangerously brittle with age... an insidious threat to the safety of men and materials. That's why more and more of the important companies are standardizing

on HERC-ALLOY Sling Chains...because you can see for yourself that they're safe.

\*Write for your copy of this new, informative booklet. No charge.

### HERC-ALLOY FEATURES

- America's first alloy steel sling chain... first to bear a serial number.
- Every CM HERC-ALLOY Sling Chain is alloy steel throughout...links, rings, hooks. There is only one grade...the best.
- Every chain is individually tested and accompanied by a certificate of registration.
- Links are side welded for maximum strength by patented INSWELL electric method.
- HERC-ALLOY Chains should never be annealed.
- HERC-ALLOY Chains are lighter...stronger...
   easier to handle...outlast ordinary chains
   4 to 5 times...cost less on the job.

HERC-ALLOY... the chain you can SEE is safe

### GLIDDEN ESTABLISHES LECITHIN SALES DIVISION

Establishment of a Lecithin Sales Division under the direction of J. H. Lathe, is announced by the Glidden Company, Cleveland, Ohio. Lecithin, which is used in baking, chocolate and confectionery production, and in the petroleum, cosmetic, chemical, rubber, paper, printing, and numerous other industries, is characterized as a somewhat mysterious substance. It is composed of fatty acids, glycerol, phosphoric acid and choline, and is found in all living cells.

Lecithin is also used in leather processing, paint and varnish, dry cleaning, glues and adhesives, textiles, insecticides and fungicides, photography, creosoting of timber, and toothpaste.

The soy bean is said to contain more lecithin than any other source, animal or vegetable, and has enabled producers to lower the price from several dollars a pound to about 35c a pound.

### RYERSON COMPLETES NEW OFFICE AT PITTSBURGH PLANT

Joseph T. Ryerson & Son, Inc., announces the completion and occupancy of new two-story steel, brick and stone



Modern new office at Ryerson's Pittsburgh steel service plant

office building at its Pittsburgh plant which is located at Arch Street and Bell Avenue, Carnegie. H. L. Robinson, manager of the Pittsburgh plant stated that the improvements could be expected to aid materially in expediting steel shipments.

### CHLORINATED PARAFFIN OFFERED BY WAR ASSETS ADMINISTRATION

1 1 1

Nearly five million pounds of government-owned, surplus chlorinated paraffin, used during the war for water-proofing and flame-proofing, is being offered for sale on a competitive bid basis, War Assets Administration announces.

A compound similar to liquid petroleum or petroleum wax, the material was acquired by the government at a cost of \$596,000. The presence of chlorine causes the paraffin to be "fire resistant or flame retarding". It was manufactured during the war as an agent for water and flameproofing of canvas, and can be used also for water and flame-proofing of plywood and fibre board; as a liquid coolant for transformers and as a substitute for paraffin in insulating electric wires. It is

(Continued on page 286)



4-WINGED DRIVER CAN'T SLIP OUT OF PHILLIPS TAPERED RECESS



when you use AMERICAN PHILLIPS SCREWS

IN PRODUCTION: Many top-rank stove builders and other makers of household appliances rate the modern method of American Phillips Screw-driving as a major means of cost-control. For American Phillips Screws save by making power-driving practical on all jobs. And they save in many other ways: Fumble-proof starts, automatically straight driving, no burred screwheads or spoiled work, faster assembly . . . and more finished goods on the shipping platform every day. Sum of all timesavings runs as high as 50%.

IN SALES PROMOTION: American Phillips Screws give any product a smartly finished, modern look that packs plenty of appeal to purchasers. And there are no snags to catch hose or clothes. So American Phillips Screws pay off double...in the plant and on the sales-floor. Ask American to show you how and why American Phillips Screws always cost least to use.

AMERICAN SCREW COMPANY, PROVIDENCE 1, RHODE ISLAND Chicago 11: 589 E. Illinois Street Detroit 2: 502 Stephenson Building

con bronze)





(Continued from page 284)

used also in the manufacture of lubricating greases and cutting oil.

Most of the paraffin is approximately 40 percent chlorine, in liquid form; the balance, 70 percent chlorine, in dry form. All of it is subject to normal deterioration. The 40 percent material is put up in 55-gallon iron drums; the 70 percent is packed in wooden barrels or cartons. The material is offered "as is" and is

The material is offered "as is" and is available for inspection at location. Minimum quantity available for purchase is 5,000 pounds in drums, barrels or cartons.

Bids to purchase all or any part will be received until January 15, 1947, by the WAA regional offices having inventories. Sales will be f.o.b. point of location.

The following regions have inventories: of the 40 percent material: Atlanta, Birmingham, Detroit, Kansas City, Nashville, New York, Richmond, Salt Lake City, and San Francisco. Cleveland and New York have some quantities of the 70 percent material.

### NEW FIRE EXTINGUISHERS SHOULD BE EXAMINED

1 1 1

Newly acquired extinguishers supplied by sources other than the manufacturers or their authorized agents should be thoroughly inspected before they are put into service, to make sure they are in operating condition. Those that show evidence of mishandling or deterioration may be dangerous to the user and may not function properly when needed. They should be reconditioned only by the manufacturer whose nameplate they bear.

The extinguisher shell, particularly in the case of soda acid and foam types, should be examined for dents caused by falls and for signs of weakening at the seams. Bulges in the shell indicate that the unit has been subjected to freezing or insufficient venting of pressure. Evidence of soldering or other makeshift repairs are also indications that the extinguisher may not be safe for use. Soda acid and foam extinguishers should be checked on hydrostatic testing equipment for their ability to withstand pressure to 350 pounds.

Rubber hoses should be examined for cracks or loss of flexibility, especially where substandard extinguishers bearing EAS approval are concerned. Made during the war, these "Emergency Approved" models were constructed of substitute materials which are subject to rapid deterioration. Porcelain enamel coatings, used on interior parts of EAS pump tanks and foam extinguishers, should be inspected for cracks.

Carbon dioxide extinguishers should be examined for corrosion, damage to the horn, clogging of the discharge nozzle, and damage to the valve. The extinguisher should be weighed to make sure the valve is still gastight. The cylinder should be subjected to hydrostatic test for its ability to withstand pressure to 3,000 pounds.

(Please turn to page 288)

### Magnesium Castings Are Available Now

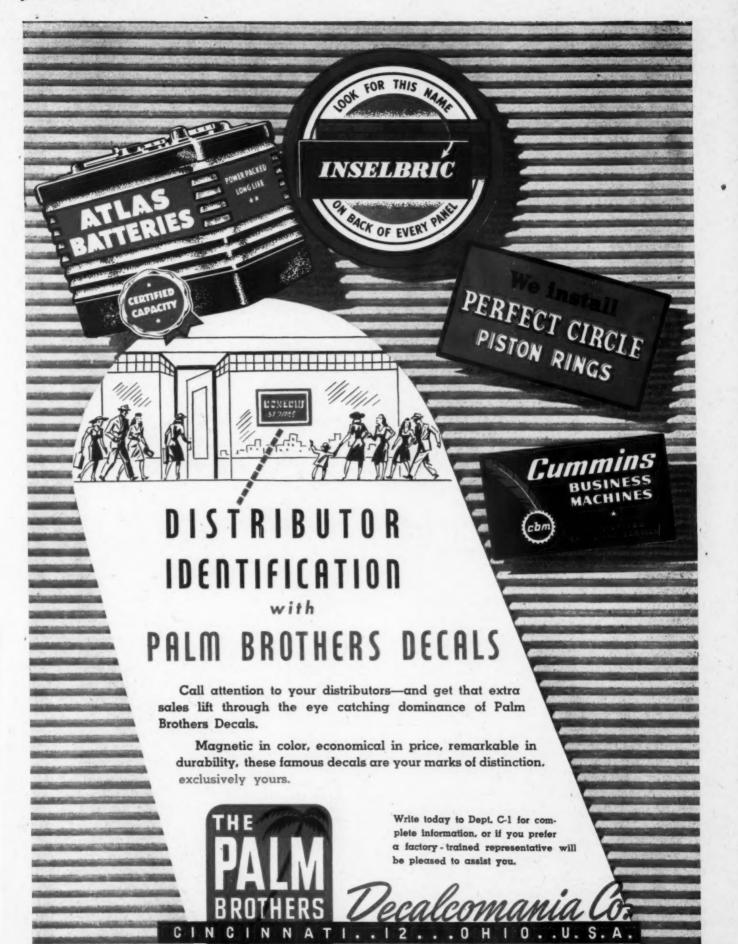
#### OFTEN AT EQUAL OR LESS COST

Because of their excellent machining qualities, Magnesium castings often cost less than finished castings of other metals. We make Magnesium alloy castings of all sizes, from a fraction of an inch up to six feet in diameter for a variety of uses, including aircraft, textile machines, office equipment, scales, fish line manufacturing, vacuum cleaners and toys. Why not investigate the possibilities of using Magnesium?

Write for complete information to

UTICA RADIATOR CORPORATION
Magnesium and Aluminum Castings
UTICA 2, N.Y.





### To Honor Your Veterans



### This Rich Bronze Plaque

created by master craftsmen in the enduring metal of the arts, fittingly expresses reverence for the memory of those who gave their lives, and honor to all who served in the armed forces. Beautifully etched design with draped flags reproduced in full natural colors.

Shield provides space for gold star names. If not needed for this purpose is finished in red and white. Plaque mounted on solid walnut panel, is 11" x 1434", accommodates any number of names up to 60. Panels may be rearranged to make plaque suitable for one or only a few names. Price \$50.00 plus \$1.10 for engraving each complete name. (Larger sizes to accommodate more names quoted on request.) Write us or place your order now.

### ETCHING COMPANY OF AMERICA

1520 MONTANA STREET, CHICAGO 14, ILLINOIS O

#### GREENE, TWEED & CO. MOVE FACILITIES TO NORTH WALES

Greene, Tweed & Co., manufacturers of packings, replaceable-face hammers, wrenches, etc., announce that in an effort to provide more efficient service to users and distributors, the New York Works has been vacated, and all facilities will be incorporated under one supervision in the North Wales, Pa., plant.

#### COLOR-BOOKLET ON PLASTIC VENEER

1 1 1

A full-color booklet, marking a new advance in plastic finishing is being distributed by The Meyercord Co., 5323 W. Lake St., Chicago, decalcomania manufacturer, to illustrate wide industrial uses, flexibility and application of the firm's wood and marble recreations in plastic

It is said that the plastic finishes cannot be detected from originals. Their use speeds production, cuts cost and provides



in quantity many patterns of rare wood and stone otherwise unobtainable. Manufacturers may specify finishes resistant to wear, abrasion, alcohol impact or constant washing, applicable to wood, metal, composition or plastic surfaces. Application can be made to flat metal before die shaping or drawing, permitting the predecoration of fabricated goods without tearing, marring or marking.

The booklet presents ideas for radio cabinets, furniture, lamps, chests and even caskets, with veneers in wood finishes, stains and grains, in marble, onxy and leather. The product can be used as allover finish, as banding, or trim, or in combination with inlay.

#### 1 1 1 "LAMP USER'S BIBLE"

New 76-page technical treatise entitled "G-E Bulletin LD-1", prepared by G. E. Weitz, lamp and lighting authority, Nela Park, is characterized as the lamp user's "bible". The bulletin, 81/2" x 11" size, contains the cream of technical data published by the Engineering division of the G. E. Lamp Department, and also features the very latest lamp developments and their practical applications in a host of fields. The bulletin is a condensed text on the design and operation of incandescent, mercury, and fluorescent light sources. It contains more than 40 lamp topics presented in such manner as to quickly answer the majority of questions that might be asked in their connection. Copy of the bulletin is available from the G. E. Lamp Department, Nela Park, Cleveland, Ohio. The price is 40c each, singly or in quantity.

### BOOKLET EXPLAINS HEAT TREATMENT OF ALUMINUM ALLOYS

New book written by O. L. Mitchell and G. W. Birdsall, called "Heat Treating Aluminum Alloys" is announced by Reynolds Metals Co. Purpose is to provide information for both technical and non-technical readers. First section breaks down the subject for non-technical readers, provides simplified explanation of the what, why, and how of heat treating aluminum. Second section presents the recommended thermal treatments for various aluminum alloys in brief tabular form. Third section, for the metalurgist and operating personnel, contains technical discussion of various thermal treatments, information on possible difficulties, suggestions for their cure. Book contains 144 pages, 81 illustrations, 13 tables, 18 photomicrographs, 2 charts, and is available from Reynolds Metals Co., Dept. 47, 2500 So. Third St., Louisville, 1, Ky., at price of \$1.00 each.

### ANNOUNCE PRODUCTION OF N-PROPYL ALCOHOL

Commercial production of n-propyl alcohol was commenced at Chemcel, the large Celanese Chemical Cor-oration plant producing synthetic organic chemicals near Rishop, Texas. Normal propyl alcohol, sometimes referred to as n-propanal is a water white, straight chain alcohol with a low freezing point-127° C, and fairly high boiling point, 97.2° C. Extensive use is expected for n-propanal as a re-lacement for other alcohols now in critical supply, and in processes where its excellent solvent action and miscibility can be used to advantage. These uses include the manufacture of adhesives, resins, cosmetics, lacquers, dopes and waxes. It is also valuable in the production of straight chain, 3-carbon esters and salts.

### WILCOX ELECTRIC ENTERS TELEPHONE-RADIO FIELD

Announcement is made that the Wilcox Electric Company of Kansas City, Mo., has entered the telephone-radio communications field, setting up a new division within the company, namely the Telephone Division. John O. Conway has been named sales manager and adminis-

(Continued on page 292)





Mr. A. D. Bernard, Purchasing Agent, Walker-Turner Company, Inc., Plainfield, N. J., at the left, clearing up some details with Mr. A. F. Lehnhardt, Divisional Manager, Behr-Manning, New York City.

### "The P. A. Is My Engineering Contact"

"Reaching the Methods and Tool Engineers for consultations and job tests is an extremely important part of our selling job", says A. F. Lehnhardt. "In my experience, the P.A. is the focal point of production and engineering interests. He makes my plant contacts. Then, too, he's the man our distributor salesmen follow for the products and services we recommend. The P.A. is the key man in engineering selling."

Today the Purchasing Agent is vitally important to sound sales planning. He is the reservoir of what, where and how to buy almost everything . . . the man who

decides whether you'll be on the vital "accepted list", and finally decides which product will be ordered.

And the P.A. is a busy man. He can't read a lot of magazines, but his own magazine "Purchasing" goes straight into his private office without detours. It's the one magazine he always reads . . . the place where your advertising is certain to catch him.

For further facts regarding "Purchasing" write to 205 East 42nd Street, New York 17, N. Y., Offices in Chicago, Cleveland, Los Angeles.





A CONOVER-MAST

THE NATIONAL MAGAZINE FOR PURCHASING EXECUTIVES

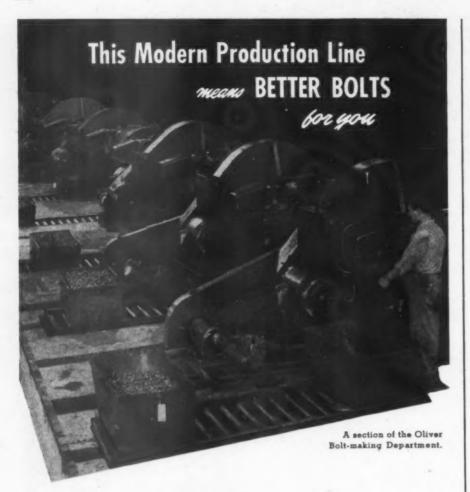
# We want EVERYBODY to know how today's P. A. functions

Many successful Sales Engineers like Mr. Lehnhardt already know that no piece of equipment is too technical or complex to discuss intelligently with the modern Purchasing Executive.

And we want every one of America's Sales Executives to recognize this truth. That's why month after month advertisements like the one on the left appear in magazines read by more than 40,000 men responsible for the sales and advertising of Industry's leading manufacturers.

The publishers of your magazine "Purchasing" will continue to conduct this campaign for a sound understanding of industrial distribution and procurement. This is a service not only to the purchasing group but to all industry.





### Dependable, Uniform OLIVER Fasteners

Dependable uniformity and high quality are features of OLIVER Industrial Fasteners that make these products your best specification. Made by modern production methods and carefully inspected before shipment, Oliver bolts, nuts, screws, rivets and special fasteners fit accurately, thread-on readily and hold firmly.

See Your Industrial Distributor





#### (Continued from page 289)

trator of the new division, and John H. Van Horn has been named chief engineer. Outstanding product service to be offered includes a combination radio and automatic dial telephone exchange. This combination will use telephone for short distances and radio for point to point communications. Another combination said to be especially adaptable to industrial users combines telephone communication with a public address system. By dialing a specified number, any telephone in the system automatically becomes a microphone and the entire organization can be addressed by the executive using the system.

### INCREASED USE OF PLASTICS FORECAST

1 1 1

Plastics radio cabinets, lamp shades, electric toaster bases and hundreds of other plastics parts can now be molded in half the time required in prewar years due to manufacturing and material improvements made during the war, according to William H. Milton, Jr., manager of the General Electric plastics divisions. He forecast continued improvements which would increase both the uses and volume of plastics products in the country in the coming five years.

"By taking advantage of the opportunities of improving manufacturing technique, the plastics industry could make rapid strides forward even if all other possibilities for advancement were static," the G-E official said. "The improvements made during the past few years have been astounding and there is no reason to believe they will cease now."

Mr. Milton cited the development of electronic pre-heating devices as an example of wartime development. This development alone, he said, is resulting in the time saving of as much as 50 per cent in the molding of hundreds of different plastics products now.

In estimating that General Electric would double the volume of its plastics business this year as compared to 1940 and probably increase that in 1947 with expanded facilities, Milton cited the role of the chemist as one cause for his confidence.

"In our own laboratories right now, chemists have been testing a new plastics of the silicone family for a week. Already it has surpassed tests of any other similar material and they can't tell yet when it is going to stop growing better. How can I help but be enthusiastic about the plastics industry's future with things like this going on?", he asked.

Mr. Milton stated that further cause for optimism was the educational period which designers and manufacturers in almost every industry have undergone since metals and other materials first became scarce prior to the war. He disclosed that many of these designers have now discovered that plastics were not only suitable substitutes but actually were better materials than those previously used in certain uses.

#### There Will Come A Day (Continued from page 87)

is in excellent position, or should be, to advise regarding its operation. The same is true of the setting of standard costs, etc. He must, of course, be careful to handle these matters through the proper channels so as to avoid friction and not incur the displeasure of other departments. Where the Purchasing Agent has the ear of Top Management (and this is becoming true to an increasing extent) there is, of course, no problem in that connection.

Certainly a great many manufac-turers, and distributors at various levels, too, have found themselves with seriously unbalanced inventor-The first reaction might be: "Well, it's low-priced inventory, isn't it?" Perhaps much of it is, but how about those outstanding orders? Are some of them duplicates? The old timers tell us that things can change very rapidly-when they do. If that happens, your inventory might pyramid itself-but quick.

As prices rise, deliveries I ecome easier. As lead time, which is a reflection of demand, is reduced, prices tend to soften. A smooth working inventory is better at the top than the chance of further inventory appre-

Here are a few thoughts which might help us keep from getting caught at the top with our inventories heavy:

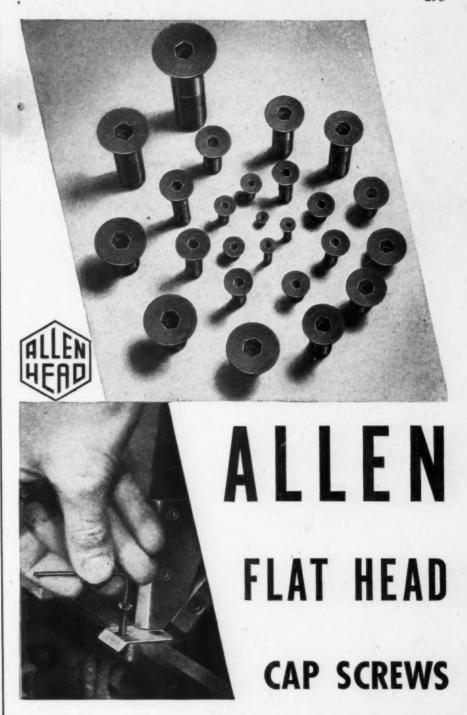
1. Has production of any particular unit been discontinued? Has production of any unit been curtailed to leave excessive inventory stocks on hand? Get rid of the surplus.

2. Raise these questions with Management and Sales: Is there a backlog of unscheduled orders which our customers still want? How far ahead are orders being scheduled for shipment? Are they firm orders?

3. With the above questions answered, the proper departments should bring their requisitions to the Purchasing Department into a realistic relationship with sales, and cancellation or deferment of delivery should be arranged when necessary.

4. The Purchasing Department must see to it that its orders are not filled prematurely. Have you noticed the tendency of the part of suppliers of some materials to ship long before the required time? This could prove embarrassing. How does your cancellation clause read?

5. What about prices? It is contrary to old established and sound purchasing procedure to have outstanding orders with indefinite de-(Continued on page 294)



### For perfect countersink-fit; positive wrenching

(1) Flush top surface with no gap between screw head and surrounding metal. (2) Extreme rigidity of grip, because angle of head helps lock screw in place by drawing down on a conical surface. (3) Firmer hold on thin plates of metal, by more binding surface under the head than in fillister type or cheese-head screws, (4) Shallower countersink - less weakening of metal - when used for fastening a relatively thin plate. (5) Positive engagement of hex key transmits power for tightest of set-ups without slipping, reaming or side play. (6) Maximum strength of screw itself assured by "pressur-forming" of special-analysis ALLENOY steel. Threaded to a high Class 3 fit. (7) Speed in assembly provided for by use of Allen hand drivers and key blades for power drivers.

Order of your local ALLEN Distributor, - or ask him for samples for try-out.

THE ALLEN MANUFACTURING COMPANY HARTFORD 1, \* ALLEN \* CONNECTICUT, U. S. A.

### There Will Come A Day (Continued from page 293)

livery promises and without firm prices. The reason for such a condition under present circumstances is apparent to all, but when do we get down to a solid foundation? When competition sets in. Sure, but how about making an attempt to correct this condition right now.

6. Do you know the value of your outstanding purchase orders? How about a commitment register, kept up to date daily? What is the percentage of purchase cost as compared with sales? On this basis, what will your inventory be three months from now, according to anticipated

sales?

Verily, these are troublesome times, and the Purchasing Agent, even with years of experience—and more especially the rookie who cut his eye-teeth in the Purchasing Department under wartime conditions—has problems. All of us will do well to take advantage of the services offered by the National Association of Purchasing Agents to help us keep abreast of developments along the procurement line.

The big problem is timing. This we cannot always control, and there are many events outside the sphere of our influence which have a profound effect on our work. But with a little forethought, perhaps we can weave with the blow as a boxer does, so as to cushion the shock to a great extent. This seems like a good policy for 1947—perhaps for 1952 also

### Ninth District Conference

(Continued from page 116)

senting Governor John O. Pastore, expressed the official greeting of the State, and revealed himself as a masterful teller of Irish stories.

The address of the evening was given by George A. Renard, Executive Secretary of the National Association of Purchasing Agents, who spoke under the familiar title "From One P.A. to Another". Reporting on Association progress, he noted that the 72nd local group-at Wichita, Kansas - had been admitted to the N.A.P.A. family at the November meeting of the Executive Committee, and that the 10,000th individual member of the Association was registered on November 5th, setting new high records for numerical strength and geographical coverage. The main theme of his address, on the economic situation in which purchasing men are operating today, followed closely the

corresponding address at the Seventh District Conference, which was reported in detail in last month's issue.

The commentary on current conditions was brought up to date with several significant references. On the topic of demand and prices, Mr. Renard stated that a few months ago the automobile industry estimated demand at twenty-five million new cars, but that this demand was based on 1942 prices; at present price levels, the most liberal estimates of demand do not go above nine million cars. At the peak of prewar automobile production, he said, General Motors produced and sold about a million Chevrolet cars in a year, but found a market for only sixty thousand Cadillacs in the same period. As Chevrolet prices approach the Cadillac level, the market is correspondingly contracting and demand is approaching the Cadillac level too. Many practical industrial economists are of the opinion that we are rapidly pricing ourselves out of the predicted era

of high demand and production and consequent prosperity, largely due to the effect of rising labor costs and lower productivity. He strongly urged that inventory policies and commitments be geared to the realistic view of what may lie ahead.

District Vice President Healey closed the conference with a tribute to the splendid work of the conference committee in arranging the meeting and program, and to the members of the district for the enthusiastic support and attendance which gave substance and value to the proceedings. He voiced the sentiments of everyone present in characterizing the conference as an important milestone in Association activities, successful and inspiring beyond the fondest hopes of those who had sponsored the meeting. Spontaneous applause greeted his announcement that the conference would henceforth be an annual affair, and that the 1947 meeting is scheduled to be held at Springfield, with the Western Massachusetts group as host association.

#### Purchasing and Sales Relationships

(Continued from page 124)

sions and departments of the company, and from non-employees carefully selected. The first course will include eight weeks of lectures and practical classroom work to be followed by an equal number of weeks of supervised training in the field.

The buyer of the future will be more technically trained, too. With almost a million veterans now studying in our colleges and universities, we should have ample material to replenish the sales and procurement staffs.

Profits will be smaller, but there will still be profits. Knowledge of production and materials costs has increased greatly during the war and this fact, coupled with increased competition for business, which is not far off if present indications are reliable, will prevent the sales of all but specialized items on a long profit basis.

#### **Establishing New Relationships**

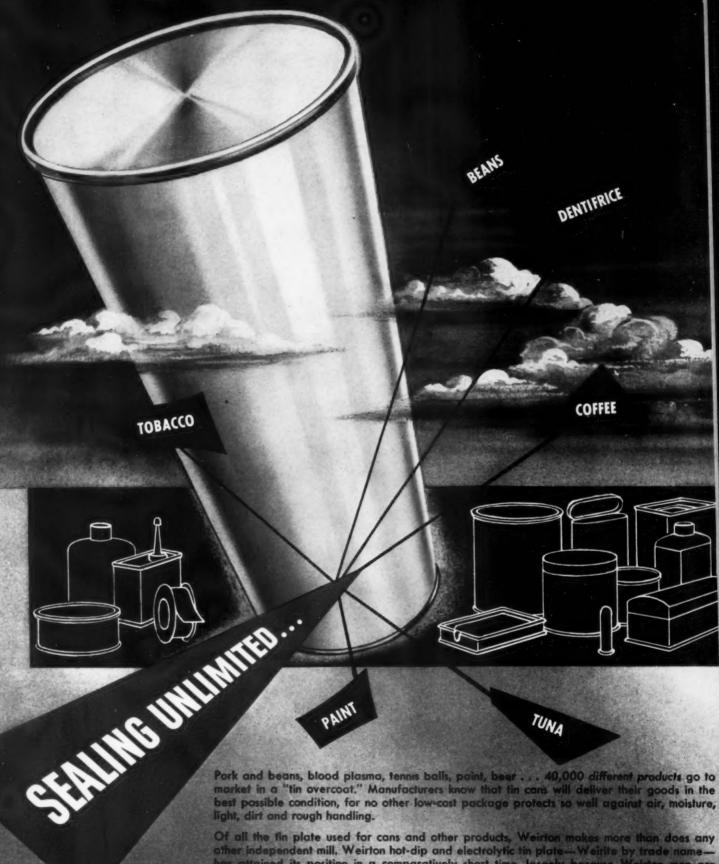
Another lever against long profits goes back to old purchasing fundamentals. Did you ever hear of the "buy or make" problem? It is being brought out and dusted off again. Read the trade press and note how many of our national concerns are acquiring manufacturers of products they use just to keep those pipe lines filled.

Buyers will be more receptive to considering new accounts. Many of you have had to turn to new sources during the present emergency and the moral obligation to stay with the supplier who has seen you through in an emergency will be hard to overcome. On the other hand, it will be easier for the salesman to get by the front door and get new accounts, but it will be harder to hold them. Many Purchasing Agents have found out to their sorrow that a non-receptive policy towards salesmen in the past has boomeranged during this emergency period, and they have had to go to those accounts and ask for material. Experience is a great teacher.

Exclusive and non-competitive set-ups will be less common. Many of them have broken down during the emergency and today we find the former exclusive handlers of a certain product handling three or four competitive lines. These violations of exclusive sales contracts have been overlooked in the struggle to get materials and supplies.

This brings me to another point which used to be a matter of concern in the 20's and 30's. We used to worry and complain that the purchasing function did not have a proper voice in management. The war and postwar years changed that. Today we are definitely a part of management. We are no longer the unsung blocking back; the ball has

(Continued on page 298)



Of all the fin plate used for cans and other products, Weirton makes more than does any other independent mill. Weirton hot-dip and electrolytic tin plate—Weirite by trade name—has attained its position in a comparatively short time, largely because Weirton men are constantly alert to new and improved manufacturing techniques. Weirton was among the first to install a continuous hot strip mill; it led by several years in the manufacture of tin plate by the cold reduction process; it developed the greatest speeds in electrolytic tin plating, a method that produces a finer product and effects tremendous savings in critical tin.

Weirite is only one of many products made at the modern, integrated Weirton mill, others are Weirzin electrolytic zinc-coated sheets and strip, Weircoloy galvanized sheets, Weiralead lead alloy sheets, manufacturing and long ternes, hot and cold rolled strip, cold rolled spring steel, cold rolled sheets, N-A-X High-Tensile.

### WEIRTON STEEL CO.

WEIRTON, W. VA. Sales Offices in Principal Cities

Division of NATIONAL STEEL CORPORATION

Executive Offices, Pittsburgh, Pa.





### Reach for P.P.D.

### whenever you want reliable, practical buying information

Here's a buyers' guide that is revised, checked, cross-checked and constantly improved to provide discriminating industrial buyers with an up-to-date source of new equipment . . . supplies . . . products . . . trade names . . . addresses . . . chemical and mechanical data.

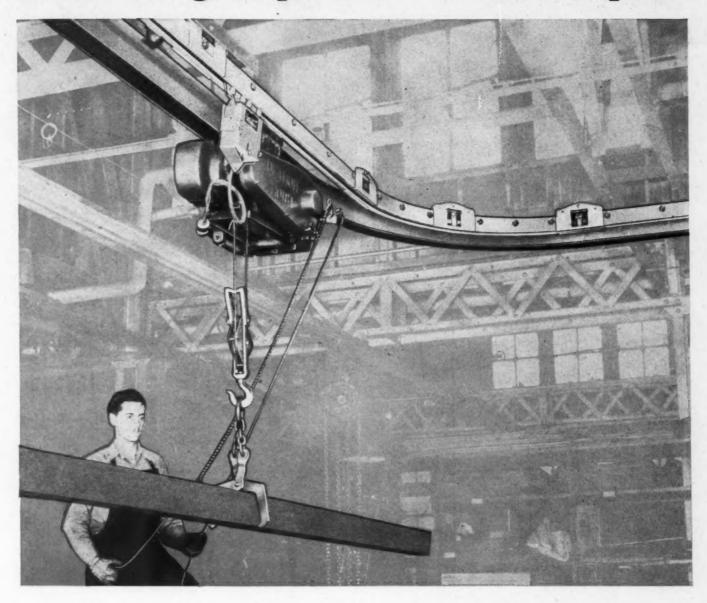
More than 25,000 production, purchasing and engineering executives prefer Plant Purchasing Directory—the industrial directory that's in step with industrial progress.

MORE and MORE industrial buyers use P.P.D. because it's designed to their particular specifications—concise... comprehensive... practical... easy-to-handle and complete in industrial scope.

Remember . . . P.P.D. is the lightweight industrial directory that's right at your fingertips for instant reference. If you haven't used it yet, just try it the first time you want buying information.

### PLANT PURCHASING DIRECTORY

### How to get power without pull



POWER follows cranes, hoists and portable tools like a well-trained pup when BullDog Industrial Trol-E-Duct goes to work in your plant.

That's why we say you can get power without pull from this modern, flexible system for electrical distribution. Eight ounces is all it takes to move currentcollecting ball bearing trolleys along the continuous slotted duct.

Conductors are safely enclosed in a sturdy steel casing to remove the menace of accidental contact. Hazards of long, dangling extension cords are gone, too.

Because trolleys can tap power from every inch of the duct, the need for rewiring or adding new fixed outlets to accommodate production changes is completely eliminated. And because rigid bus bars insure uniform contact pressure, dangerous arcs and resultant breakdowns are prevented—a major saving in maintenance costs.

Besides the advantages of safety, efficiency and economy, BullDog Industrial Trol-E-Duct has 100-percent salvage value if plant alterations call for relocating the system.

Call a BullDog Field Engineer today and let him show you a BullDog installation near your own plant. Or, if you prefer, simply write BullDog direct and we'll send detailed descriptive folders.



### BULLDOG



BullDog manufactures Vacu-Break Safety Switches—SafToFuse Panelboards—Superboards Rocker Type Lighting Panels—Switch boards—Circuit Master Breakers—"Lo-X" Feeder BUStribution DUCT—"Plug-in" Type BUStribution DUCT—Universal Trol-E-Duct for flexible lighting—Industrial Trol-E-Duct for portable tools, cranes, hoists.



#### Purchasing and Sales Relationships

(Continued from page 294)

been placed in our hands. Where or how far we carry it is up to us.

We should be tolerant today. Some short-sighted people in procurement try to threaten and cajole suppliers who will not take their business. They are trying to emulate the elephant who is supposed never to forget. It has been my experience that tactics of this sort can only result in regrets during the future years. Concerns that were either small or nonexistent prior to the war, or that have branched out into new products, are having a pretty rough time of it. Sellers, selfishly perhaps, are trying to appraise the future of these endeavors and choose the spots, both geographically and individually, where they will ship the merchandise available. We in purchasing have to sell our concern to the suppliers.

These are the trends as I see them and I think they will make for better future purchasing-sales relationships than we have ever known. The past is gone—we cannot do much about the present—but we can

look to the future.

The Case Against the Industrial Bootlegger

(Continued from page 92)

new mousetrap just when the old one seems to be doing its best job. Drastic steps must be taken when the customer asks why the product is not being improved or why a new one is not available to do the same job better. It is in times like these that the bootlegger gets his day in court because the user may feel that if he must use the same old thing about the least he can do is to get it cheaper, and he often feels that it is just and proper to do so.

Some manufacturers go the limit in furnishing variations in design. This is almost always costly and the customer must ultimately pay the freight. The only answer to this problem is to eliminate the number of variables. Too little cooperation between manufacturers and users is the reason for too many variables. To eliminate a multiplicity of variables and to encourage standardization requires a real selling job and certainly is not the path of least resistance. But the manufacturer should have the courage to face the



the turn of a nut, bolt, or screw means production turnover for you...turn to Sterling, a dependable source for every known type fastener

25 YEARS OF SERVICE TO BOLT AND NUT BUYERS





fact that lack of reasonable standardization raises prices and becomes the loophole through which many bootleggers get into an industry.

At the present time almost the only solution to rising labor and material costs is the introduction of standards which will permit lower manufacturing costs. Lower manufacturing costs will help hold prices at a level where the bootlegger is squeezed out or back into a business where his operations are not so disruptive both to the user and the

manufacturer.

There is almost no hope in the use of patent protection in the elimination of the bootlegger. While many manufacturers might be well protected patent-wise, in order to get relief it is necessary to get the user involved. Where the user is a partner-in-crime to the bootlegger, and a potential customer to boot, it is considered indiscreet by most manufacturers to take legal steps.

#### Joker in the Deck

(Continued from page 99)

every 83 years there has been a major internal disturbance resulting in a redistribution of wealth. We are in the midst of such a period right now. We can do all the wishful thinking we want to, but the cold fact remains visibly in front of us that for the rest of our lives we are going to be taxed and taxed and taxed. It is economically impossible to carry such a burden of taxation and increase the standard of living. The collection of these record taxes will have a thousand times more effect on the domestic consumption, and therefore on the price for American production, than all the rulings that the OPA ever issued. In country after country, since economic history has been recorded, we find that when the tax payers of a country pay anywhere near 30% of their income, the following developments always occur.

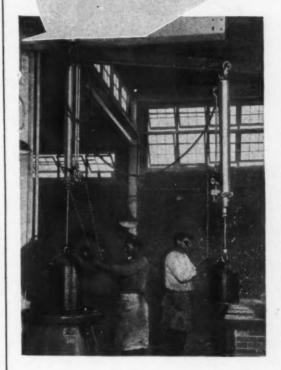
The tax payers gradually become an enemy of the government with individuals trying to get their business on a cash basis to avoid taxes. The standard of living is reduced, since the producer does not have the surplus funds to buy strictly nonessential things when the payment of taxes becomes the most important single factor in his entire budget. W. Randolph Burgess, Vice Chairman of the Board of the National City Bank, very ably described the

(Continued on page 300)



says Maurer Supply Co. about

### CURTIS AIR HOISTS



he Maurer Supply Co., St. Louis, uses Curtis Air Hoists to raise and lower parts in hot-dip galvanizing work. Among other advantages, they have found that the rigid rod in Curtis hoists eliminates swinging; that the positive control of loads is essential to such work and provides a maximum of safety to the operators. Working under severe conditions of acids and heat, these Curtis Air Hoists are giving "trouble-free service" and enabling this company "to perform an operation impossible without them."

Curtis Air Hoists have a proven record of saving time

and labor in many lifting, pushing or pulling operations. They offer:

Low first.cost; lowest operating expense. Smooth, fast, accurate control of loads. Finger-tip control. Light weight; cannot be overloaded.

Capacities up to 10 tons. For complete information on Curtis Air Hoists, Air Cylinders and Air

#### CURTIS PNEUMATIC MACHINERY DIVISION

of Curtis Manufacturing Company

1908 Kienlen Avenue

Compressors, write for Bulletin C-7.

St. Louis 20, Missouri

CURTIS PNEUMATIC MACHINERY of Curtis Manufacturing Company 1908 Kienlen Avenue, St. Louis 20, Misso	
Please send me Form C-7 on Curtis Air H	oists, Air Cylinders and Curtis Air Compressors.
Name	
Firm	
Street	
City	ZoneState

Lifts 25 Tons a Full 101/4 Inches with Great Ease!



There are so many heavy lifting and moving jobs for which the Simplex Standard Speed Ball Bearing Industrial Jack is "tops" for ease, speed and safety. No. 2522 lifts its full rated capacity on the cap or the broad toe lift (10 sq. in.). Affords greater clearance above ground for easier operation because the enclosed ratchet mechanism is at the top of the Jack, instead of in the base as in journal Jacks. Send for Catalog 45.

Templeton, Kenly & Co. Chicago 44, Ill. Better, Safer Jacks Since 1899

SIMPLEX
WORLD'S MOST
COMPLETE
LINE OF
JACKS
LEVER
SCREW
HYDRAULIC

#### Joker in the Deck

(Continued from page 298) situation that the United States economy is in when he said first, that we are now paying reparations to our enemy instead of collecting them, and that on the whole we are in the "phase of bitter disillusionment".

#### Danger Long Foreseen

Three years ago, when Russia was thought of as a friend and ally, I quoted an extract from a speech made by Donoso Cortez to the Spanish Assembly in January, 1850. Let us repeat it.

"I am not of the opinion, however, that Europe has no cause for worry over Russia. I hold the contrary view, but there are three developments necessary to cause Russit to resort to a general war for conquest of Europe which I venture to say, gentlemen, are not merely possible but also probable.

"The first is that the social revolution, having dissolved society, shall disband standing armies. In the secplace, a mighty confederation of all the Slav people under Russia's influence and protection must come about. The Slav people number eighty million.

Well, when the revolution shall have wiped out Europe's standing armies, when the communist revolution shall have extinguished European patriotism, when in the east of Europe the great federation of Slavic peoples shall have been accomplished, and when in the west there are but two armies, that of the spoiler and that of the despoiled, then Russia's hour will strike. Then Russia will be able to stroll quietly, arms folded, into Europe, and the world will witness the most terrible chastisement in recorded history. It is England above all who will suffer it; her ships will not help her against the Colossus, and with one hand on Europe and the other on India, the great British Empire will crash in fragments and the noise of her fall and the sound of her mourning will echo to the poles."

### GULF STATES PAPER TO BUILD PLANT ADDITION

1 1 1

The Gulf States Paper Corporation has been authorized to build a \$490,000 addition to its existing Tuscaloosa, Ala. wrapping paper and shipping carton plant, according to announcement by the Civilian Production Administration.



The DI-ACRO Bender makes perfectly centered eyes from rod or strip stock at high hourly production rates. Both

eyes and centering bend are formed with one operation. Any size eye may be formed within capacity of bender and ductile limits of material.

DI-ACRO Precision
Bending is accurate to
.001' for duplicated parts.
DI-ACRO Benders bend angle, channel, rod, tubing wire moulding, strip

DIE-LESS'

the process comme

DI-ACRO Benders bend angle, channel, rod, tubing, wire, moulding, strip stock, etc. Machines are easily adjustable for simple, compound and reverse bends of varying radii.

DI-ACRO

BENDER

NO. 1

DI-ACRO IS PRONOUNCED "DIE-ACK-RO"

O'NEIL-IRWIN MFG. CO.

305 EIGHTH AVE., LAKE CITY, MINNESOTA

### **ALUMINUM**

BARS • SHEETS • COILS STRIPS • WIRE • TUBING

1500 Tons in stock at Chicago, Detroit and New York for immediate delivery.

We also have a large stock of Stainless Steel.

ADVISE US OF YOUR REQUIREMENTS DIAMOND STEEL COMPANY, INC.

3604 W. FULLERTON AVE. CHICAGO 47, ILL.

Phones ALBany 5397 — CAPitol 6487

• ALL TYPES • CARRIED IN STOCK





Well, yes — 1947 marks the date Reliable has been in business for 10 years, and we feel grown up now! We are not inclined to get too cocky over this record — we're not the oldest spring producer, though we think

we are one of the best. But our pride in Reliable's achievement means at least as much to you as to us. For we firmly believe that Reliable's experience adds up to better service, better values, better springs, for YOU!

In the past decade we have probably accumulated as much maturity (what with the million and one troubles that any business today is heir to) as an old-time manufacturer could in 50 years. For us, the first 10 years are the hardest (we hope)! We've learned a lot and done a lot. We expect to learn more and do more. Meantime, remember that Reliable stands ready to serve you fully, expertly, on springs, wire forms and stampings — and do it just a little better than the other fellow.

 When sending inquiry, describe springs as completely as possible, sending sketch, samples, or blue print. Mention any special requirements known, such as working space, initial tension, and load. Our engineers are ready to work with you. Bulletin on request.

THE RELIABLE SPRING & WIRE FORMS CO.
3167 Fulton Rd. Cleveland 9. Ohio

Representatives in Principal Cities



### AIR VALVES AND AIR VALVE SEATS

are made of toughest forgings -

## NATIONAL DROP FORGINGS



The New York Air Brake Company makes outstanding compressors, known everywhere for remarkable service and efficiency.

Our forgings are used because they are skillfully made of steel of maximum toughness, strength and fatique resistance.

National forgings have the requisite fibre-like grain structure reinforced at areas of greatest impact and wear.

Write us today for booklets describing our standard line of SAE yoke and rod ends, container handles and knife blades etc.:—and send us your inquiries for custom drop forgings.

The Trademark "N" is your guarantee of Fine Quality Forgings.

THE NATIONAL LOCK WASHER CO.

DROP FORGING DIVISION

**NEWARK 5** 

**NEW JERSEY** 



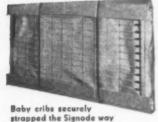
LCL shipment with Signade bulk loading protection



Wool blankets in cartons - steel strapped



Bundling auto springs with Signode Steel Strapping



*S/G* NODE

All types of wood products are shipped in greater safety when protected by Signode Steel Strapping. Damage in transit is reduced to a minimum. Signode's

NWIF

PLANNED PROTECTION provides top security and economy for every shipment—in cartons, boxes, crates or carloadings. Undamaged arrival is now more essential than ever before.

Signode's world-wide packaging and carloading experience is yours to draw on. A Representative will gladly offer suggestions to fit your specific problem. WRITE TODAY!

PERFORMS
AN IMPORTANT
FUNCTION
IN INDUSTRY



E-Z DRIVE Strap Stapler. Magazine feed for fast stapling. Drives ¾"x 5/2" standard 14. ga. staples.

S/GNODE

SIGNODE STEEL STRAPPING CO.

2602 N. Western Avenue, Chicago 47, Illinois

371 Furman St., Brooklyn 2, N. Y. 454 Bryant St., San Francisco 7, Calif.



war competition may depend on your speed and cost of production. Chicago Automatic Riveting will fasten it faster, at low unit cost. From 1 to 4 tubular or split rivets are fed, inserted and clinched in the split second required to release a Chicago foot pedal. Several Chicago models are quickly adjusted to handle different sizes of rivets. Chicago Automatic Riveters fasten wood to wood, composition to composition, fabric to

fabric, metal to metal, leather to leather, or any combination of these materials. They clinch grommets and eyelets and insert drive screws.

FREE FASTENING ANALYSIS

Chicago Rivet engineers will gladly analyze your fastening problem. Actual production rates can be set from the report they give you. No charge or obligation. Just send sample assembly or blue print.



Tubular and Split Rivets in All Rivet Metals

IF YOU ARE NOT NOW RECEIVING A PERSONAL COPY OF PURCHASING EACH MONTH ---

—drop a line to Reader Service Department, Purchasing, 205 East 42nd St., New York 17, and we will enter your subscription promptly — price \$3 for one year. \$5 for two years. You will then get your copy of PURCHASING promptly and will be able to clip the valuable articles in it for your personal reference files.

### Whether you run a peanut stand or a billion dollar business...

### you should know what Servilinen can do for YOU!

Servilinen is good for your business and gives you these major advantages: You have absolutely no investment in towels, uniforms, napkins, tablecloths, aprons, bed linens, or other washable cotton items—and yet, you have the inviting luxury, at low cost, of soft, sanitary cotton textiles that are fresh and attractive for use.

You don't have to maintain an excess inventory of linens and uniforms for peak business days or seasons.

Servilinen serves your daily business needs in direct proportion to your volume and the exact number of people you employ!

Servilinen encourages better business by contributing to a good impression on customers and employees alike. Soft towels, crisp linen, and uniforms that fit are inviting and helpful to any and all enterprising businesses.

Servilinen helps employee morale, protects public health, and increases customer satisfaction.

Discuss your business requirements with your nearest Servilinen Linen Supply Company. You'll be profitably pleased with the service and pleasantly surprised at what you can save.

The fascinating story of Servilinen in booklet form can be obtained free from your nearest Servilinen Linen Supply Company, or the Linen Supply Association of America—11 South LaSalle Street, Chicago 3, Illinois. Write for it today.







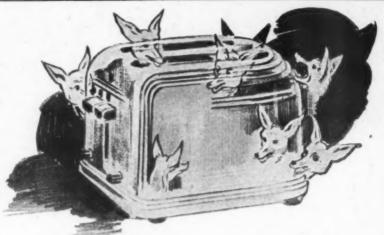
The steel is carefully chosen and inspected, even before it gets to the heading machine. After being "born" here, balls are carefully "brought up," through a long series of grinding and lapping operations, to the unbelievably high standards of finish, sphericity and precision which have made Strom Metal Balls the standard of industry. Strom Steel Ball Co., 1850 So. 54th Avenue, Cicero 50, Illinois.





Little FOXES

that spoil the designs!



NOTHING like a good "fox hunt" when it comes to product design! The first fox to bag is "misfit springs" and the best time to do it is before the product gets into the hands of the (usually unsympathetic) user. Trouble generally stems from the belief that any spring will do "if it's big enough!"

Nothing could be farther from the truth. Instead of being left to the last, springs should be *engineered* into the product — on the blue print if possible.

If, however, the machine, appliance, or whatever the product in question may happen to be, is already on the market, it should be gone over with the fine tooth comb of searching analysis.

To prevent, and cure, functional troubles in designs, we maintain a special department where springs and screw machine products may be checked with accurate machines against the job they are to do. This service is yours if you wish it.

### THE PECK SPRING COMPANY

PLAINVILLE, CONNECTICUT

MANUFACTURERS OF SPRINGS AND SCREW MACHINE PRODUCTS







### with ACADIA Synthetic Products

If a scarcity of urgently needed materials delays your production, this may be the answer to your problem: parts cut, molded, or extruded from Acadia Synthetics which incorporate the essential qualities for the job.

Acadia Synthetic Products can be processed to close tolerances—in any shape, or size desired—compounded to meet specific conditions. Name the characteristics required—elasticity, plasticity, resilience, etc.—and our engineers will suggest the right material.

Write, wire or phone today.

DIVISION WESTERN FELT WORKS

4035-4117 Ogden Ave., Chicago 23, III.





### PAGE Stainless WIRE



• It isn't boasting to say that we really know something about stainless steel wire. Wire has always been the business of PAGE. And stainless steel wire has been a PAGE specialty almost since the introduction of stainless.

PAGE offers you a responsible source for wire and information about its use in production. High and low carbon steel, Armco iron as well as various analyses of stainless. Get in touch with PAGE.



Monessen, Pa., Atlanta, Chicago, Denver Detroit, Les Angeles, New York, Philodelphia, Pitt burgh, Portland, San Francisco, Bridgeport, Conn.

PAGE STEEL AND WIRE DIVISION AMERICAN CHAIN & CABLE





### With this light, easy-to-use improved Stanley "Ace" Strapping Tool!

fast, expert job with the improved Stanley "Ace" Strapping Tool. Positive spring feed holds a 100-seal clip in magazine in any position. Strapping is tensioned, cut and sealed in only 5 seconds. The improved "Ace" is available in 3 sizes for 3/8", 1/2"

Even beginners do a

and 5/8" strapping to handle 'most any job. Special accessories designed for special needs. Write for full details or demonstration of what the Stanley improved "Ace" Strapping Tool can do for you. The Stanley Works, Steel Strapping Division, 144 Lake St., New Britain, Conn.

STANLEY

STEEL STRAPPING AND CAR BANDING SYSTEMS

Before you specify

### ANY MOTOR, check these **VALLEY** ADVANTAGES

- Wide Adaptability-sizes ½ to 75 h. p.
- More Flexibility in power planning.
- Takes Unusual Power Loads
- Drip-Proof . . . Splash-Proof
- **Economical** Operation
- Cool
- BALL BEARING

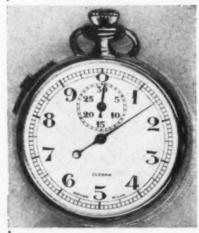




ELECTRIC CORPORATION
4221 Forest Park Blvd. - St. Louis 8, Mo.

Accurate, Reliable

### STOP WATCHES



Whereyer unfailing accuracy in timing is required, you can rely on Clebar precision timers. They have proved their dependability in many of our leading laboratories and industrial plants.

#### No. 601 CLEBAR Decimal Timer

1/100 dial, side slide for time-out, large hand makes one revolution in one minute, 30 minute register, 7 jewel non-magnetic movement; nickel chrome case. Each

A Timer for every purpose electronically set and tested.

Send for illustrated catalog.

CLEBAR WATCH CO., INC

551 FIFTH AVE.

NEW YORK 17, N. Y.





There's a precision-accurate Detecto Scale for your specific weighing and counting need.
The Detecto helps increase production, yet assures you maximum accuracy by making slightest weight discrepancies immediately

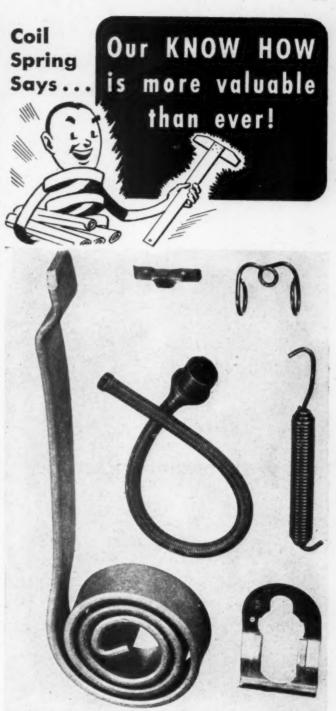


DETECTO ALUMINUM SPEED SCALE

For increased production at lower cast! One operator with one Speed Scale does as much as two operators with ordinary scales. Sturdy, precision built, super-accurate. Ends overweight losses.

Write for circular.

·SCALES



The kind of KNOW HOW that keeps the "bottleneck" label away from springs or small parts. The KNOW HOW that helps you get the best spring for your purpose at the best possible cost. No order too large or too small for our facilities. Write or call for our latest folder on our plant and its facilities.

The U.S. STEEL WIRE SPRING Co.

7800 FINNEY AVE. . MICHIGAN 6318 CLEVELAND 5, 0.

### advertisers IN THIS ISSUE

A	Eaton Mfg. Co., Rellance Div 177	M
Accurate Spring Mfg. Co	Electric Storage Battery Co., The 205 Electro Refractories & Alloys Corp 79 Erie Bolt & Nut Co	MacRae's Blue Book
Air Express Div., Railway Express Agency, Inc. 195	Esleek Mfg. Co. 252 Etching Company of America 288	MacWhyte Co
Air Reduction Sales Co. & Subsidiaries 32		Mason Box Co.         179           Master Products Co., The         226           Masters, Inc., Irvin W.         164
Allegheny Ludlum Steel Corp.         269           Allen Mfg. Co., The         293           Allmetal Screw Prods., Inc.         230	F	Mathews Conveyer Co 229
Aluminum Co. of America	Fafnir Bearing Co	Mayers Co., L. & C.         258           McGill Mfg. Co.         51           Mechanical Rubber Products Co.         236
American Cable Div. 82 American Chain & Cable Co., Inc.	Faraday Electric Corp 208 Federal Bearings Co., Inc., The 197	Merz Engineering Co 186
American Optical Co	Fiske Bros. Refining Co., Lubriplate Div. 216	Midwest Piping & Supply Co
American Rolling Mill Co	Flexible Steel Lacing Co. 276 Forest City Foundries Co., The 234 Fox River Paper Corp. 250	Moore & Thompson Div., Hudson Pulp & Paper Corp 307
Ames Co., B. C. 238 Anaconda Copper Mining Co. & Sub-	Frasse & Co., Inc., Peter A 35	. Morse Twist Drill & Machine Co38, 39
sidiary Cos.   159, 160     Anchor Post Fence Co.   64     Arkwright Finishing Co.   218	g	N
Armstrong-Bray & Co. 286 Armstrong Bros. Tool Co. 208	Gair Co., Inc., Robert 78	
Armstrong Cork Co	Gates Rubber Co	National Bearing Div., Amer. Brake Shoe Co. 215
Atlas Bolt & Screw Co 223	General Box Co	National Blank Book Co
В	General Electric Co., Lamp Div 13 General Industries Co	National Lock Washer Co. 301 National Paper Box Mfgrs. Asso. 199
Bauer & Black	Gibson Co., The Wm. D	National Screw & Mfg. Co
Bay State Abrasive Products Co 56 Bemis Bro. Bag Co 54	Great Lakes Steel Corp. 145 Greene, Tweed & Co. 77	Nicholson File Co
Besly Co., Charles H. 22 Billings & Spencer Co., The	Greenfield Tap & Die Corp. 53 Grinnell Co., Inc. 203	
Bird & Son, Inc.       178         Black & Decker Mfg. Co., The       153         Blaw Knox Co.       198	Guardian Electric Co 283	0
Botwinik Bros. of Mass., Inc178, 214 Bridgeport Brass Co	H	Oakite Products, Inc 282
Briggs & Stratton Corp	Harnischfager Sales Corp162, 163	Ohio Rubber Co., The 10 Okonite Co., The 273 Old Dominion Box Co., Inc. 65
Buffalo Bolt Co. 217 BullDog Electric Products Co. 297	Harper Co., H. M.       223         Hassall, Inc., John       29         Hawaiian Equipment Co., Ltd.       232	Old Town Ribbon & Carbon Co., Inc. 260 Oliver Iron & Steel Corp. 292
Bundy Tubing Co. 40 Bunting Brass & Bronze Co. 57	Holo-Krome Screw Corp 182 Hoover Ball & Bearing Co. 41	Olympic Glove Co., Inc. 272 O'Neil-Irwin Mfg. Co. 300
Burcott Mills	Howell Electric Motors Co	Osborn Mfg. Co., The
C	& Thompson Div. 307 Hussey & Co., C. G. 190 Hy-Pro Tool Co. 192	
Central Paper Co 184	Hy-Test Shoe Co., Div. International Shoe Co	Р
Central Screw Co		Page Steel & Wire Div
Chandler Products Corp177, 223 Chase Bag Co48	1	Palsiey Products, Inc. 267 Palm Bros. Decalcomania Co. 287 Pantasote Corp. of N. J., The 221
Chase Brass & Copper Co., Inc	Illinois Gear & Machine Co 189 Independent Pneumatic Tool Co 165	Parker-Kalon Corp
Chicago Rivet & Machine Co	Indiana Steel Products Co., The 62 Inland Steel Co	Peck Spring Co., The
Clark Equipment Co	International Paper Co	Pheoll Mfg. Co. 177, 223 Philco Corp. 201 Phillips Screw Manufacturers 223
Cleveland Cap Screw Co., The		Pittsburgh Coke & Chemical Co 171
Colgate Mfg. Corp. 237 Columbia Ribbon & Carbon Mfg. Co. 261	Jenkins Bros4th Cover	Chem. Div
Columbus-McKinnon Chain Corp 284 Consolidated Business Systems, Inc 260	Johnson Bronze Co. 31 Johnson Steel & Wire Co., Inc. 186	Powell Co., William, The
Continental Screw Co		Purchasing Magazine
Cordley & Hayes 154	К	
Crane Co	Keasbey & Mattison Co	R
	Kex National Service         278           Keystone Lumber Co.         226           Koppers Co., Inc.         18	Railway Express Agency, Inc. Air Epress Div
D	Adopters Co., Inc	Rathborne, Hair & Ridgway Co 58 Reading Screw Co
Darnell Corp., Ltd. 276 Dayton Rubber Mfg. Co., The	L	Reliable Spring & Wire Forms Co., The
Detecto Scales, Inc.         307           Detroit Tap & Tool Co.         214           Diamond Steel Co.         300	L & S Bearing Co	Republic Rubber Div., Lee Rubber & Tire Corp. 4 Republic Steel Corp. 175
Dick Co., A. B. 247 Dodge Mfg. Co. 281	Leschen & Sons Rope Co., A	Revolvator Co. 280 Reynolds Metals Co., Inc. 293
Donnelly-Kelley Glass Co 256	Linde Air Products Co., The	Reynolds & Reynolds Co., The
Dougherty Lumber Co., The 226	Link-Belt Co. 23 Littelfuse, Inc. 61	Riegel Textile Corp
E	Littleford Bros., Inc	Roebling's Sons Co., John A
Eastern Corp. 244 Eastern Stainless Steel Corp. 47	Ludlow-Saylor Wire Co., The	Nut Co
Eaton Mfg. Co., Foundry Div 285	Lyon Metal Products, Inc 212, 213	Ryerson & Co., Joseph T 86



### This RED BADGE of Merit

### IS WELL-EARNED BY ALL PRODUCTS THAT WEAR IT

This "ribbon-etch" marks the products made by the longest-experienced manufacturer of cutting tools. And this mark means these 4 things:

1. It means that the product is made of special steel, usually from Simonds' own modern electric steel mills.

2. It means that the product is fabricated in the world's first windowless plant, where all working conditions are constantly controlled to keep workers' well-being and product-quality at top level.

3. It means that the product has been tested and re-tested to make sure you get full Simonds quality in every order. (There's no "second grade" in this line.)

4. It means that the product is represented, to you, by Simonds cutting-tool engineers... and by distributors and dealers... whose engineering judgment and sales counsel is as sound as the product itself.

And wherever this mark appears in your operations, it will mark a deep cut in your cutting costs.



BRANCH OFFICES: 1350 Columbia Road, Boston 27, Mass.; 127 S. Green St., Chicago 7, Ill.; 416 W. Eighth St., Los Angeles 14, Calif.; 228 First St., San Francisco 5, Calif.; 311 S. W. First Ave., Pordand 4, Ore.; 31 W. Trent Ave., Spokane 8, Washington. Canadian Factory: 595 St. Remi St., Montreal 30.

SIMONDS CUTS YOUR CUTTING COSTS ON METAL, WOOD, PAPER, PLASTICS

### ADVERTISERS IN THIS ISSUE

8	
Safety Belt-Lacer Co.	192 236
Schollhorn Co., Wm. Scovill Mfg. Co24, 117,	223
Shakeproof Licensees	177 223
Shell Oil Co.	157
Shepard Niles Crane & Hoist Corp Sheppard Co., C. E., The	242 252
Sheppard Envelope Co.	255
Signode Steel Strapping Co	302
Simonds Gear & Mfg. Co	170
Simonds Saw & Steel Co	309
Sound Scriber Corp.	256
Southington Hdwe. Mfg. Co	
Standard Pressed Steel Co	228
Stanley Works, The	
Staples Tool Co., The	27
Starrett Co., L. S., The	168
Steel Co. of Canada, Ltd117,	223
Sterling Bolt Co223,	298
Stewart-Warner Corp	147
Strand & Co., N. A. Strom Steel Ball Co.	
Stronghold Screw Products, Inc177.	
Stuart Oil Co., Ltd., D. A.	
Sun Oil Co.	

Superior Foundry, Inc193,	274 194
т	
Taylor Chain Co., S. G. Taylor Forge & Pipe Works Templeton, Kenly & Co. Tension Envelope Corp. Texas Co., The 2nd Co. Timken Roller Bearing Co. Tinnerman Products, Inc. Tube Turns, Inc. Turco Products, Inc.	300 252 ver 37 271 149
U	
Udylite Corp., The Union Carbide & Carbon Corp. Union Wholesale Lumber Co. United States Gauge Div., Amer. Machine & Metals, Inc. U. S. Rubber Co., The U. S. Steel Corp. Subsidiaries U. S. Steel Supply Co. U. S. Steel Wire Spring Co., The Utica Drop Forge & Tool Corp. Utica Radiator Corp.	46 226 183 275 231 231 307 156

V	
Valley Electric Corp. 36 Van Dorn Electric Tool Co. Veeder-Root, Inc. Visible Index 26	73
W	
Walworth Co.       27         War Assets Corp.       27         Weatherhead Co.       2         Webster Co.       5         Weirton Steel Co.       2         Weldon Roberts Rubber Co.       2         West Disinfecting Co.       1         Western Feit Works       3         Westinghouse Electric Corp.       3rd Cov         Wheeler Reflector Co.       2         Whitlock Cordage Co.       2         Willson Products, Inc.       1         Wolverine Bolt Co.       2         Wrought Washer Mfg. Co.       1	11 77 57 95 58 61 05 er 22 86 88 23 70
Youngstown Sheet & Tube Co 1	51

### CLASSIFIED ADVERTISEMENTS

#### POSITION WANTED

PURCHASING—Young man, college graduate, experienced all phases general industrial purchasing, reads blue prints, available for permanent purchasing position anywhere with progressive, growing company. Navy assignments as Supply Officer gave broad procurement, operating, and supervisor experience. You cannot afford to miss considering this man for present or prospective openings in your purchasing organiaztion. Write Box #1094, PURCHASING, 205 East 42nd Street, New York 17, N. Y. now for details.

#### POSITION WANTED

PURCHASING AGENT-BUYER. Administrative supplies, office equipment; electrical, building maintenance supplies; and photographic equipment. Experience in office and business organization as well as personnel management. Background with the Celotex Corporation, Chicago, Illinois and Buyer for American National Red Cross on domestic and overseas installations. Thoroughly conversant with sales promotion, advertising production, administration organizing and control systems; budgetary installations, control and management. Also in the organization and direction of sales promotion, membership, publicity and fund raising campaign procedures. Write Box No. 1088, PURCHASING, 205 East 42nd Street, New York 17, N. Y.

#### WANTED

300 to 400 feet of overhead conveyor, complete with track, turns, drives, etc. for carrying small parts.

2-24" diameter straight type, free air, 7450 CFM, belt driven ventilating units, Paasche type or equivalent with or without motors, new, used or rebuilt.

2—18" diameter straight type, free air, 4700 CFM, belt driven ventilating units, Paasche type or equivalent, with or without motors, new, used or rebuilt.

New, used or rebuilt.

Write Box #1092, PURCHASING, 205 East 42nd Street, New York 17, N. Y.

#### WANTED

BUYER—Experienced in procuring motors, transformers, controls, wire and conduit and electrical fittings. Knowledge of sources of supply required. Prefer one with electrical engineering experience. This is a good opportunity. Location approximately 200 miles from New York City. Write Box #1091, PURCHASING, 205 East 42nd Street, New York 17, N. Y.

#### POSITION WANTED

PURCHASING ASSISTANT or in charge of purchases, desired by woman of 40 yrs., leaving OPA, Washington, D.C. Three years in charge of Purchases in small manufacturing company and ten years purchasing department work in large textile manufacturing companies. Capable of reorganizing purchasing department. Studied purchasing at Boston University. \$3000. Write Box #1093, PURCHASING, 205 East 42nd Street, New York 17, N.Y.

HELP WANTED — POSITIONS

WANTED — SURPLUS MATERIALS AND OTHER CLASSIFIED NOTICES

RATES for Help Wanted, Surplus Materials and similar notices — \$7 per inch. One inch minimum space. RATES for Positions Wanted notices are 6¢ a word. Allow seven words for box number address. Please send cash with order to avoid bookkeeping.

#### WANTED

Young man for ASSISTANT PURCHASING AGENT for large lowa food industry. Experience preferred, references and full details first letter. Write Box #1090, PURCHASING, 205 East 42nd Street, New York 17, N. Y.

### ATTENTION

Manufacturers of

### SMALL SHEET METAL PARTS

WE CAN DELIVER

### NEW STEEL

Galvanized, Cold or Hot Rolled Pickled and Oiled 18 and 22 gauge 2" and up in width 1' and up in length

Advise us of your requirements.

Write Box No. 1089, PURCHASING, 205 East 42nd Street, New York 17, N. Y.



### types available:

302, 303, 304, 347, 416, 420, 431, 440. Rounds, hexagons, octogons, flats, squares.

Also fair quantities of stainless steel tubing at about 50% discount from net mill prices f.o.b. location.

\* \* \*

Orders not accepted for less than 5000 lbs., except where the inventory of any individual item is less.

The material offered is subject to withdrawal prior to shipment.

RESERVE FOR PRIORITY CLAIMANTS—This material is offered for sale in the following sequence as provided by law: (1) Certified Veterans of World War II; (2) Subsequent priority claimants in proper sequence; (3) Non-priority purchasers. Federal agencies have had opportunity to fulfill their needs. Veterans of World War II should apply to their nearest War Assets Administration certifying office for certification. The case number shown on the certification, the date of the certificate, and the location of the certificate office must be stated in a veteran's offer to purchase. Stanliess Steel is available for export. Any question on

Stainless Steel is available for export. Any question on export control should be referred to Office of International Trade, Department of Commerce, Washington, D. C.

### FOR TOP QUALITY BARS AND PLATES IN PRODUCTION-RUN QUANTITIES

Think of it! Here's the steel you need now—priced far below mill prices. Warehouses must be cleared quickly for other surplus. Hence this amazing bargain today.

At this price you can afford to stockpile even against next year's requirements—for these savings will pay storage and interest charges over a long, long time.

Order today from any War Assets Regional Office. But for quickest delivery and less risk of disappointment, order from these offices which have the stock on hand:



### WAR ASSETS ADMINISTRATION

Offices located at: Atlanta · Birmingham · Bosten · Charlotte · Chicage Cincinnati · Cleveland · Dallas Denvar · Detroit · Fort Douglas, Utah Fort Worth · Helena · Houston · Jacksonville · Kansas City, Ma. · Little Rock

GOVERNMENT
OWNED
SURPLUS
Richmond • St. Louis • San Anio
Richmond • St. Louis • San Anio
San Francisco • Seattle

\*\*Tulsa\*\*

\*\*Tulsa

### AVAILABLE NOW



### NEOPRENE - COATED Work Gloves

Newly installed special equipment has made it possible to increase production of our STYLE No. 77 — a Neoprene-coated work glove with knit wrist. Orders are being solicited for immediate delivery.

Style No. 77 is coated with Neoprene . . . one of the most versatile synthetic rubbers. It is superior to ordinary rubber-dipped

gloves and is being used for commercial fishing, electro-plating and vegetable packing... in breweries, chemical plants, laboratories... and a wide variety of other fields where there is a real need for

AN OIL AND WATER-PROOF GLOVE THAT WILL ALSO PROVIDE LONG WEAR AND REAL WORKING COMFORT.

**Send me** copy of amazing laboratory tests of Riegel's No. 77 Work Glove — Neoprene-coated.

Also submit prices on quantity of......dozen pairs.

Me Title

CLIP THIS TO YOUR LETTERHEAD AND MAIL TODAY TO RIEGEL TEXTILE CORP., 342 Madison Ave., New York 17, N. Y.

Riegel
Wagon Brand
WORK GLOVES

# There's a future features for these beatures in your shop

· Prediction: There's complete welding satisfaction ahead . . . once you decide upon a Flexarc All-Purpose Welder for your shop. The WT-4C has ample capacity for heavy production as well as fight work, for fabrication and repairs. You can use a wide variety of electrodes from 1/16" to 3/16". In special cases you can use them larger.

Distinctive Westinghouse features provide 30 steps of current adjustment from 20 to 250 amperes. A built-in capacitor holds power factor between 80% and 90% at one-half to full rated

Segregated reactance provides the instantaneous voltage control needed for a stable, easily handled arc. Insulation is Class B . : : the best obtainable. Ventilation is natural. There are no blowers or fans to require attention. A built-in circuit breaker protects the welder and is also used as a switch to turn current on and off at the welder.

> And all equipment is included. There is nothing more to buy. Get all the facts by writing for Booklet B-3548. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.



Ask for descriptive literature B-3665 about "50 lessons in Arc Welding". For information about Flexarc Electrodes, ask for Booklet B-3650.



Model WT-4, available with or without high power factor.

#### A SMALLER WELDER

The WT-1C. Here is a lowcost machine for maintenance and light fabrication. Welding current ranges from 20 to 140 amperes in 15 steps. The same princi-ples of design and the same generous proportions of materials are used here as in all Flexarc Welders.

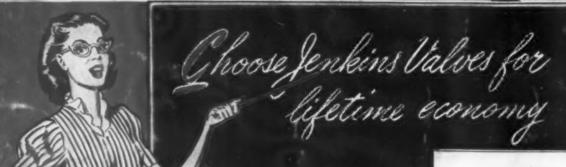


FLEXARC WELDERS AND ELECTRODES



Be sure to place valves correctly in the line





### How to head the class in valve economy

Jenkins 3-Point Formula is a lesson you can't learn too well if you want to keep valve expense down.

For help in selecting and placing valves correctly, take advantage of the competent counsel of Jenkins Engineers.

For assurance of the extra endurance that means longer, trouble-free valve service - for the lowest cost in the long run - let Jenkins 3-Point Formula be your buying guide.

Jenkins Bros., 80 White Street, New York 13; Bridgeport, Conn.; Atlanta; Boston; Philadelphia; Chicago; San Francisco. Jenkins Bros., Ltd., Montreal, Canada; London, England.





For every Industrial, Engineering, Marine, Plumbing-Heating Service . . . In Bronze, Iron, Cast Steel and Corrosion-resisting Alloys . . . 125 to 600 lbs. pressure

Sold Through Reliable Industrial Distributors Everywhere



200 lbs.

#### JENKINS Fig. 275 **Outside Screw and Yoke BRONZE GATE VALVE**

Made with extra stamina to withstand effects of frequent operation and give long, trouble-free service. Rising spindle, with threads outside the valve where they are easily accessible for lubrication, serves as an indicator of wedge position. Spindle of manganese bronze. Yoke and bonnet cast as single unit for greater rigidity and strength.

ONE OF OVER 600 EXTRA VALVE VALUES MADE BY JENKINS VALVE SPECIALISTS